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P R E F A C E .

THE Editors have again to thank their supporters—both contributors and subscribers—for their aid and co-operation in keeping up the standard of the journal.

The increase in the size of the index is evidence of a corresponding and gratifying increase in the number of short notes published, always a valuable feature, and the balance of subjects has been more equitable than in some previous years, there not having been an undue preponderance of any one subject.

The Editors would, however, draw the attention of their geological and biological friends to the fact that those subjects have not this year been so well represented as could be wished.

Many readers express a desire to see more papers dealing with biology and life-history, and the Editors will gladly use them if their biological friends will contribute of their stores of information, and thereby assist them in their wish to do ample justice to all sides of the subjects embraced in the scope of the Naturalist.

Special attention has been devoted to Lincolnshire a comparatively unworked county, and it is hoped that the publication of the sketch-map of the soils and natural history divisions of that important and productive portion of the kingdom will prove a stimulus to the detailed working out of its fauna and flora.

It was found necessary to transpose the second sheets of the September and November numbers, but a re-transposition of them by the binder will set the pagination right. Meanwhile it should be borne in mind that pp. 273-288, dated September, were actually issued in November, and pp. 313-328, dated November, were issued in September.

THE NATURALIST

For 1895.

BIRD-NOTES FROM THE HUMBER DISTRICT IN THE AUTUMN OF 1894.

JOHN CORDEAUX, M.B.O.U.,

Great Cotes House, R.S.O., Lincoln.

IN the autumn of 1894 the prevailing winds have been northerly and easterly, seldom approaching a gale. These winds are considered the most favourable quarters for the arrival of immigrants on the east coast. This, however, has not been the case, the results having been most disappointing, and the season, taking it altogether, has proved a singularly barren one; the individual occurrences, too, of rare wanderers have been few and far between, and these, as a rule, devoid of special interest.

Undoubtedly the chief event of the season as regards Yorkshire was the occurrence of three Yellow-browed Warblers (*Phylloscopus superciliosus*) at Beverley, on October 8th and subsequently, as recorded by Mr. F. Boyes in 'The Field' newspaper, for Oct. 27th, 1894.

In preparing these notes I have again to thank Mr. G. H. Caton Haigh, of Grainsby Hall; Mr. H. B. Hewetson, of Leeds; Mr. P. Loten, of Easington; and Mr. Matthew Bailey, of Flamborough, for notes and general assistance.

Lanius collurio L. Red-backed Shrike. It is worth putting on record that a pair nested this summer at Winsetts, a farm between Skeffling and Easington. Five young birds got off about the third week in July; most unfortunately the female was shot on the 19th, and the male and two of the young on the 21st by the farmer. The latter had apparently only just left the nest.

Anas boschas L. Wild Duck. Aug. 13th. Mr. Haigh found them very abundant in flocks of 20-30 on the Lincolnshire coast at this date. Teal (*Querquedula crecca*) also nearly as numerous, and two or three Shovellers (*Spatula clypeata*) on the old outfall at Tetney.

Tringa canutus L. **Knot.** August 16th. Many thousands were seen on the coast by Mr. Haigh, hundreds also of Oystercatchers (*Hæmatopus ostralegus*) and several parties of Grey Plover (*Squatarola helvetica*) the latter almost all of them having black breasts. A few Whimbrel (*Numenius phæopus*) also seen. Curlew (*N. arquata*) have been feeding in flocks, from 50 to 200, in the marsh pastures during the month. Mr. Haigh also saw a Greenshank (*Totanus canescens*) on the 16th; on the 27th many.

Loxia curvirostra L. **Crossbill.** August 22nd. At least a dozen were seen in the neighbourhood of Easington and Kilnsea about this date. These appear to have been adults, and both males and females. One fine red male, which I saw at Mr. Loten's, at Easington, was obtained near Kilnsea by a lad who saw it climbing up the side of a water-butt; he first tried to coax it, calling it 'pretty Poll,' and afterwards with the instincts of his race, being an English boy, pelted it to death. A second which I saw was taken by hand—this also a fine red male. I also saw an adult green female. Mr. Bailey showed me a remarkably fine red male obtained at Flamborough on the 24th. These Crossbills were thought at first to be referable to the northern form (*Loxia pityopsittacus*), but although very fine and large birds, I am convinced they are only the common species and not the Parrot Crossbill. In the last number of 'The Annals of Scottish Natural History,' Crossbills are recorded at Foula; Monach Lighthouse, Outer Hebrides; and the Skerryvore Rock Lighthouse; at the first on August 16th and September 3rd, at the second locality August 7th, and at the last on July 2nd.

Limosa belgica (J. F. Gmelin). **Black-tailed Godwit.** September 1st. One which I saw in the flesh was shot by Stubbs on the coast near Tetney Haven.

Motacilla raii (Bonaparte). **Yellow Wagtail.** September 5th, evening. Large numbers were seen by Mr. Haigh on North Cotes fitties, two which were got having light and conspicuous eye-brows. The individual birds in these autumn flocks appear to vary very considerably in this feature, from almost pure white to buff, and it seems quite impossible to separate them from young of *M. flava*.

Tringa minuta Leisler. **Little Stint.** September 7th and 9th. Several about the coast near the Spurn; a few were shot and taken to Mr. Loten.

Regulus cristatus K. L. Koch. **Gold-crested Wren.** September 10th. First seen at the Spurn. Tetney, October 1st, and subsequently on the coast of Holderness during the first week in the month, and in very large numbers.

Phalaropus hyperboreus (L.). **Red-necked Phalarope.** Sept. 10th. An immature male shot at Kilnsea, Holderness, by G. E. Clubley.

Alcedo ispida L. | **Kingfisher.** September 10th, in Great Cotes marshes. Plentiful in the East Lincolnshire marsh district in September.

Falco peregrinus Tunstall. **Peregrine Falcon.** September 17th. This morning, soon after dawn, when at the Humber side at Easington, with Mr. H. B. Hewetson, we saw three Peregrine Falcons over the foreshore; two of these passed us almost within range of a gunshot, and the larger of the two I observed appeared to be very rufous underneath. This was indeed a sight not often vouchsafed to a naturalist to see these grand birds beating down the coast, sometimes sailing in circles and then gliding forward. There is an appearance in the flight of the Peregrine Falcon which is always suggestive of immense strength and power of wing. Not less interesting was it to mark the panic amongst the Lapwings and shore-birds, the latter rising to an immense height to escape the deadly downward swoop of their enemy. Scores of noisy Curlews flew along the tide edge, and many hundreds of Peewits kept drifting irregularly away from the land to seek the security of the Lincolnshire coast. I again saw a Peregrine Falcon on October 25th, near Bridlington.

Corvus cornix L. **Hooded Crow.** October 1st and 2nd. Arrived on the Lincolnshire coast in very large numbers. Wind N.E.

Alauda arvensis L. **Skylark.** October 1st to 23rd. Enormous numbers came in, the fields on the Lincolnshire coast, and at Easington and Flamborough, swarmed with them.

Corvus frugilegus L. **Rook.** Immense numbers came in during October at intervals. Mr. Haigh writes that on October 12th, 'there was a large migration of Rooks, Grey Crows, Starlings, and Larks, the last coming in from two directions, crossing each other at right angles, one lot going south, and the other west.' He further remarks 'I never saw birds of the same species crossing each other before.'

Gallinago cœlestis (Frenzel) and **G. gallinula** (L.). **Common Snipe and Jack Snipe.** October 1st. Both the Common and

Jack Snipe arrived in coast districts. On October 6th, Mr. Haigh shot half a dozen Jack Snipe at North Cotes. On the 8th of October there was a large flight of *G. caelestis*. This year the summer and early autumn was passed by me in Northumberland and in the southern counties of Scotland, and in almost daily wanderings in the lonely solitudes along the border I was glad to find such a goodly number of Golden Plover and Snipe breeding, the latter being particularly numerous in all suitable localities. I remember one day (July 18th) on the moors near Bonnie Rigg Hall, below the Roman station of Borcovicus (Housesteads), coming upon about two hundred Golden Plover in one flock, and of these nearly the whole must have been adult, for they had black breasts. There are four small lochs in this district, and near one a ruined shieling or farmhouse. This can be used to cover an approach without alarming any wild fowl which are on the water. Hard by the ruin was a bog overgrown with thickets of sweet gale, stunted alder, and willow, with a wealth of water-loving plants encroaching on the shallow end of the tarn; dense beds of bog-bean (*Menyanthes trifoliata*) and marsh cinque-foil (*Comarum palustre*) with deep-cut leaflets, silvery beneath, and flowers of a dull purple, most attractive when growing in masses. Lightly stepping through a broken gap in the wall, I crossed to where a window, with heavy stone mullions, looks towards the lake. How very still and eerie the place seemed on this summer day. I wondered what mystery or what sadness dwelt there. It was so still and quiet that I could distinctly hear the lip-lapping of the water on the margin of the loch. Cautiously peeping above the massive stone sill of the window I saw, first, about a score of Brown-headed Gulls floating double, bird and shadow, as on a mirror; further off was a cluster of dark lumps, which were presumably a family party of Tufted Duck (*Fuligula cristata*). Close to the ruin, on a spit of gravel which ran into the loch, was quite a crowd of birds. I counted seventeen Snipe, six Heron, and two Teal. The Snipe stood like a flock of Knot on a sand-bar. It was a charming picture of still life—a vision of perfect repose. The birds, although so near, were for a minute or more totally unconscious of being observed. The loch was surrounded by dark slopes of heather, and on the south side the view was curtailed by the steep and irregular outline of the great whinstone sill, to the north rugged and broken with disrupted masses of dark basalt and crowned with the yet imposing remains of the Roman Wall and Station (Borcovicus) which stands the most

wonderful and abiding relic of antiquity to be found anywhere in all England. Once it formed part of the scientific frontier of an empire and was held by a great army; but now, eighteen centuries later, the trumpets of the cohorts are silenced and you listen to the whinnying of the heather-bleats (Snipe) and the wheepling of the noisy whaups (Curlew).

Ruticilla phœnicurus (L.). **Redstart.** September 17th. I saw several on the coast near the Spurn and about the gardens there. Mr. Haigh saw one at North Cotes on October 25th.

Turdus merula L. **Blackbird.** September 28th to November 1st. Have come in almost continuously between these dates day by day. Mr. Haigh thinks the immigration of this species has decidedly been the chief feature of the season.

Erithacus rubecula (L.). **Robin.** October 6th. Mr. Haigh writes there was a small rush of birds on the coast to-day, many Robins, Blackbirds, Mistletoe Thrushes, and Hedge Sparrows, and again on the 8th great number of Robins and Hedge Sparrows were also observed near Easington in Holderness. Mr. Gätke says all birds have been very scarce at Heligoland this autumn, only the little Robin continued almost daily to pass through, more or less numerously, from the latter part of September to the end of November.

Turdus iliacus L. **Redwing.** October 6th. First flocks and many again early in November.

Anthus obscurus (Latham). **Rock Pipit.** October 8th. First observed by Mr. Haigh on the coast.

Acanthis flavirostris (L.). **Twite.** October 20th. First appeared in flocks on the coast.

Scolopax rusticula L. **Woodcock.** October 20th and 21st. Wind N. and N.E. to E.; full moon. First flight of Woodcock on the Yorkshire and Lincolnshire coast. They had been dropping in sparingly during the week. Are reported on the 20th and 21st as plentiful at Flamborough, near Withernsea, and at Easington and the Spurn. Fifteen couples were shot at the latter place on the morning of the 20th by four guns. It was thought that the new light at Withernsea had attracted them specially in that neighbourhood. At Kilnsea Woodcock were seen to come in at daybreak and drop. Short-eared Owls, Redwings, Bramblings at the same date, and great plenty of Blackbirds.

Ruticilla titys (Scopoli). **Black Redstart.** October 23rd. A fine adult male seen on a hedge close to Flamborough village.

Vanellus vulgaris Bechstein. **Lapwing.** Came in at intervals during October, but in no very marked rush.

Accipiter nisus (L.). **Sparrow Hawk.** October 20th. About this date many, and following days.

Turdus pilaris L. **Fieldfare.** November 1st. The chief flocks came at this date, also many Redwings.

Corvus monedula L. **Daw.** November, first week. There was an extraordinary immigration of this bird observed at Easington, flocks, in some cases numbering 50 to 60, constantly coming in from the sea and this for three or four days in succession.

Otocorys alpestris (L.). **Shore-lark.** At the end of October and early in November on the coast near Easington, and subsequently mixed with Larks and rising with them. One flock I was told had at least 100 birds in it.

Buteo lagopus (J. F. Gmelin). **Rough-legged Buzzard.** One shot at Winestead near Patrington in the second week of November. Mr. Fieldsend, of Lincoln, also received one from Friskney in that county. There is a third record, but I have misplaced the notice.

NOTE—MAMMALIA.

Whiskered Bat in Lancashire.—I have recently examined a Whiskered Bat (*Vespertilio mystacinus*), which was found at Hest Bank, near Morecambe, in August 1887. Mr. G. F. Gee, to whom the specimen belongs, informs me that the Bat was found on the ground, where a hen was pecking it.—CHAS. OLDHAM, Sale, December 8th, 1894.

NOTES—ORNITHOLOGY.

Nesting of the Woodcock near Bradford, 1894.—Four eggs of the Woodcock (*Scolopax rusticola*) were found by some boys in a wood near Bradford this season.—WILLIAM HEWETT, York, October 28th, 1894.

Nesting of the Hawfinch in Bolton Woods.—The nest and eggs of this handsome finch (*Coccothraustes vulgaris*) were obtained this summer in Bolton Woods, on the branch of a tree overhanging the Strid.—WILLIAM HEWETT, York, October 28th, 1894.

Nesting of the Turtle Dove near Skipwith in 1894.—The Rev. C. D. Ash, M.A., of Skipwith Vicarage, near Selby, informs me that the Turtle Dove (*Turtur turtur*) which is a very local bird in Yorkshire, has this season bred near Skipwith, and that he has seen the nest together with the old and young birds.—WILLIAM HEWETT, York, October 28th, 1894.

Grey Phalarope on the Lancashire Coast.—A Grey Phalarope (*Phalaropus fulicarius*) was shot on the shore at Southport by Mr. G. F. Gee, of Manchester, on the 5th of November last, and its occurrence was recorded in the columns of the 'Manchester City News' for November 10th. Mr. Gee, who has kindly allowed me to examine the bird, states that a second Phalarope was seen at the same time but was not obtained.—CHAS. OLDHAM, Sale, December 8th, 1894.

BOTANICAL NOTES FROM THE SHEFFIELD DISTRICT.

T. GIBBS AND E. SNELGROVE, B.A.

THE following list is the result of botanical rambles in South Yorkshire and North Derbyshire during the three years 1891, 1892, and 1893, and is intended to be read as supplemental to the records contained in Mr. F. Arnold Lees' 'Flora of West Yorkshire,' and the Rev. W. H. Painter's 'Contribution to the Flora of Derbyshire.' Most of the work was done on the Derbyshire side, and within six miles of Sheffield; but it was diversified by several excursions to more distant localities in Derbyshire and West Yorkshire, where the somewhat poor flora of the coal measures is replaced by the rich and varied floras of the mountain and magnesian limestones.

The arrangement and nomenclature is that of the 8th edition of the London Catalogue; an exception has, however, been made in the case of the fruticose Rubi, in which group the order and nomenclature are those adopted by the Rev. W. Moyle Rogers, F.L.S., in his 'Key to the British Rubi.' All the specimens in this puzzling group have been looked through and their nomenclature authenticated or (where necessary) corrected by Mr. Rogers.

The counties to which the records belong are indicated by the initial 'Y' or 'D' prefixed to each; one locality, viz., Cresswell Crag is entered throughout under 'D,' though it is in fact partly in Nottinghamshire. The initials after a record indicate the contributor; where none are given the species has been noted by both the compilers of this list.

Ranunculus circinatus Sibth. Y. Roche Abbey (T.G.).

Ranunculus fluitans Lam. var. **Bachii** (Wirtg.). D. Lathkill Dale (T.G.).

Ranunculus hederaceus L. Y. Redmires (T.G.). D. Snake Inn (T.G.); Dore Moor (E.S.).

Ranunculus sceleratus L. D. Between Norton and Heeley (E.S.).

Ranunculus auricomus L. Y. Beighton (T.G.). D. Between Norton and Eckington (T.G.).

Aquilegia vulgaris L. Y. Near Roche Abbey (T.G.).

Chelidonium majus L. Y. Roche Abbey (T.G.).

Corydalis claviculata L. Y. Ecclesall Wood (T.G.).

Barbarea vulgaris R.Br. D. Beighton, Ashover, and Stoney Middleton (T.G.).

- Arabis sagittata** DC. Y. Banner Cross (T.G.). D. Roadside near Fox House (T.G.); Markland Grips (E.S.).
- Cardamine amara** L. D. Birleyhay near Eckington (T.G.).
- Draba muralis** L. D. Lathkill Dale (T.G.).
- Sisymbrium thalianum** Hook. D. Lathkill Dale (T.G.).
- Reseda luteola** L. Y. Thrybergh (E.S.).
- Helianthemum chamæcistus** Mill. D. Common on the Mountain and Magnesian Limestones.
- Viola palustris** L. Y. Ecclesall Wood (E.S.). D. Common in bogs on the moors (T.G.).
- Viola hirta** L. Y. Kiveton Park (T.G.). D. Common in bogs on the moors (T.G.).
- Silene noctiflora** L. D. A garden weed at Norton Lees (E.S.).
- Cerastium semidecandrum** L. D. Lathkill Dale (T.G.).
- Cerastium glomeratum** Thuill. Y. Ecclesall Wood (E.S.).
- Hypericum quadratum** Stokes. D. Markland Grips (T.G.).
- Hypericum perforatum** L. D. Cresswell Craggs and Markland Grips.
- Hypericum pulchrum** L. Y. and D. Common on railway banks.
- Hypericum hirsutum** L. D. Cresswell Craggs and Markland Grips.
- Malva rotundifolia** L. Y. Roche Abbey (T.G.). D. Cresswell Craggs.
- Linum usitatissimum** L. Y. Road-side at Ecclesall. D. Corn-field at Millhouses. In each case an obvious 'escape' (T.G.).
- Geranium columbinum** L. Y. Thrybergh (E.S.).
- Geranium pusillum** L. D. Near Norton Lees (E.S.). Cresswell (T.G.).
- Euonymus europæus** L. D. Whitwell (T.G.); Cresswell Craggs and Markland Grips.
- Rhamnus catharticus** L. D. Cresswell Craggs and Markland Grips.
- Rhamnus Frangula** L. D. Markland Grips.
- Ulex Gallii** Planch. Y. and D. Common on the moors (T.G.).
- Genista tinctoria** L. D. Near Norton.
- Ononis arvensis** L. D. Cresswell Craggs and Markland Grips.
- Trifolium procumbens** L. D. Cresswell (E.S.).
- Anthyllis vulneraria** L. D. Middleton Dale (T.G.); Cresswell Craggs and Markland Grips.

Lathyrus macrorhizus Wimm. Y. and D. Common about Sheffield.

Prunus Avium L. Y. Ecclesall Wood (T.G.). D. Millhouses and Beauchieff (T.G.).

Prunus Padus L. Y. Wharncliffe and Whiteley Woods (T.G.).

Rubus fissus Lindl. D. Near Holmesfield (T.G.).

Rubus pulcherrimus Neum. D. Millhouses and near Holmesfield (T.G.).

Rubus carpinifolius W. and N. Y. Ecclesall (T.G.). D. Near Dore (T.G.).

Rubus rusticanus Merc. Y. and D. Common on the Magnesian Limestone (T.G.).

Rubus macrophyllus W. and N. D. Millhouses (T.G.).

Rubus Sprengelii Weihe. Y. Wharncliffe and Ecclesall Woods (T.G.). D. Moors near Dore and Ringinglow (T.G.); Stanton Moor, near Rowsley (T.G.).

Rubus podophyllus P.J.Muell. Y. Ecclesall Wood; also in hedge near Ecclesall Church (T.G.).

Rubus leucostachys Schleich. Y. and D. Common, flowers usually white, but sometimes deep pink (T.G.).

Rubus radula Weihe. D. Millhouses and Stanton Moor (T.G.).

Rubus mucronatus Blox. Y. Ecclesall Wood (T.G.).

Rubus rosaceus W. and N. VAR. **R. hystrix** W. and N. D. Near Dore (T.G.). 'A strongly aciculate form' (W. M. Rogers).

Rubus dumetorum W. and N. VAR. **R. ferox** Weihe. D. Dore (T.G.).

VAR. **concinus** Baker. Y. and D. Common in hedges (T.G.).

Rubus cæsius L. D. Whitwell (T.G.); Cresswell.

Rubus Chamæmorus L. D. Summit of Kinder Scout (T.G.).

Poterium Sanguisorba L. D. Middleton Dale; Whitwell (T.G.); Cresswell.

Poterium officinale Hook. f. D. Killamarsh, Holmesfield, Baslow and Rowsley (T.G.).

Rosa mollis Sm. D. Near Holmesfield (T.G.).

Saxifraga tridactylites L. D. Lathkill Dale (T.G.).

Saxifraga granulata L. D. Lathkill Dale (T.G.).

Ribes grossularia L. } Y. and D. Frequent in woods and hedges,
Ribes rubrum L. } but probably in most cases only outcasts
Ribes nigrum L. } from gardens or bird-sown 'casuals' (T.G.).

Drosera rotundifolia L. D. Moors near Dore (T.G.).

- Epilobium angustifolium** L. Y. and D. Common on railway banks. D. Blacka Plantation, Dore (T.G.).
- Hydrocotyle vulgaris** L. D. Common in bogs on the moors (T.G.).
- Sanicula europæa** L. Y. Roche Abbey (T.G.). D. Whitwell Wood and Cresswell Crag (T.G.); near Chatsworth (T.G.); Markland Grips (E.S.).
- Conium maculatum** L. D. Beighton (T.G.); Maltby (T.G.).
- Pimpinella Saxifraga** L. D. Cresswell (E.S.).
- Pimpinella magna** Huds. Y. Edlington Woods (E.S.).
- Myrrhis odorata** Scop. Y. Wharncliffe Wood (T.G.); Ecclesall Wood. D. Beauchieff, Dore, Norton, Eckington, Baslow, Rowsley, Calver and Monyash (T.G.).
- Ænanthe Phellandrium** Lam. D. Markland Grips (E.S.).
- Daucus Carota** L. D. Millhouses (T.G.).
- Caucalis Anthriscus** Huds. D. Markland Grips (E.S.).
- Caucalis nodosa** Scop. D. Markland Grips (E.S.).
- Cornus sanguinea** L. D. Beighton and Whitwell (T.G.); Cresswell.
- Adoxa Moschatellina** L. Y. and D. Frequent in the district. D. Cresswell Crag (T.G.).
- Viburnum Opulus** L. D. Near Hemsworth (E.S.).
- Asperula odorata** L. Y. Ecclesall Wood (E.S.). D. Whitwell Wood (T.G.).
- Sherardia arvensis** L. D. Millhouses (T.G.). Markland Grips (E.S.).
- Valeriana dioica** L. D. Markland Grips (E.S.).
- Valeriana officinalis** L. D. Millhouses and Beauchieff (T.G.); Markland Grips (E.S.).
- Valerianella olitoria** Moench. Y. Thrybergh (E.S.). D. Lathkill Dale (T.G.).
- Scabiosa columbaria** L. D. Castleton (T.G.). Markland Grips (E.S.).
- Eupatorium cannabinum** L. D. Cresswell.
- Solidago Virgaurea** L. Y. Wharncliffe Wood (T.G.). D. Beauchieff and Topley (T.G.); Markland Grips (E.S.).
- Erigeron acre** L. D. Cresswell Crag.
- Filago germanica** L. D. Markland Grips (E.S.).
- Inula Conyza** DC. D. Markland Grips.

- Pulicaria dysenterica** Gärtn. D. Near Holmesfield (T.G.); Markland Grips.
- Achillea Ptarmica** L. D. Millhouses (E.S.); common in bogs on the moors (T.G.).
- Anthemis Cotula** L. Y. Bradfield (E.S.).
- Matricaria Chamomilla** L. D. Near Norton (E.S.).
- Tanacetum vulgare** L. D. Beighton (T.G.).
- Artemisia vulgaris** L. D. Cresswell.
- Cnicus acaulis** Hoffm. D. Cresswell.
- Centaurea Scabiosa** L. D. Cresswell.
- Crepis hieracioides** Wald. and Kit. Y. Meadow near Ecclesall Wood (T.G.).
- Crepis paludosa** Moench. D. Bog near Dore (T.G.).
- Hieracium Pilosella** L. D. Markland Grips (E.S.).
- Hypochæris radicata** L. Y. and D. Common about Sheffield.
- Leontodon autumnalis** L. VAR. **pratensis** (Koch). D. Near Norton Lees (E.S.).
- Lactuca muralis** Fresen. Y. Banner Cross (T.G.). D. Norton, Totley, Stanton-in-the-Peak, Rowsley, Whitwell (T.G.); Cresswell Crag.
- Tragopogon pratensis** L. Y. Heeley and Rotherham (E.S.); D. Dore (T.G.).
- Jasione montana** L. Y. Bradfield (E.S.).
- Campanula latifolia** L. D. Between Norton and Eckington, Holmesfield, Markland Grips (T.G.); near Heeley.
- Vaccinium Oxycoccus** L. D. Bogs near Ringinglow (T.G.).
- Vaccinium Vitis-Idæa** L. Y. and D. Common on the moors.
- Erica cinerea** L. Y. and D. Common on the moors.
- Lysimachia nemorum** L. Y. Ecclesall Wood (E.S.). D. Between Norton and Heeley (E.S.).
- Erythræa Centaurium** Pers. Y. Wadsworth Woods (E.S.). D. Whirlow Bridge (T.G.).
- Cynoglossum officinale** L. D. Markland Grips.
- Myosotis palustris** With. D. Beauchieff (T.G.); Cresswell.
- Myosotis repens** D. Don. D. Bogs near Dore (T.G.).
- Myosotis sylvatica** Hoffm. Y. Wharncliffe Wood (T.G.). D. Whitwell Wood, Bakewell, Lathkill Dale, Middleton Dale (T.G.).
- Echium vulgare** L. D. Markland Grips.

- Verbascum Thapsus** L. D. Markland Grips.
- Linaria Elatine** Mill. Y. Corn-field near Roche Abbey (T.G.).
- Linaria vulgaris** Mill. D. Common on railway banks (T.G.).
- Linaria viscida** Moench. Y. Corn-field near Roche Abbey; also on railway at Sandal and Walton Station (T.G.). D. On railway at Millhouses (T.G.).
- Scrophularia aquatica** L. D. Killamarsh (T.G.); Cresswell and Markland Grips.
- Veronica hederæfolia** L. D. Cultivated fields near Norton (E.S.).
- Veronica montana** L. Y. Near Heeley (E.S.); Ecclesall Wood. D. Wood near Wingerworth (T.G.).
- Veronica Anagallis** L. Y. Anston (E.S.).
- Bartsia Odontites** Huds. Y. Near Heeley (E.S.).
- Pedicularis sylvatica** L. D. Fields between Norton and Eckington (T.G.); Dore Moor (E.S.).
- Pinguicula vulgaris** L. D. Moors near Dore (T.G.).
- Origanum vulgare** L. D. Cresswell.
- Thymus Serpyllum** L. D. Markland Grips.
- Calamintha officinalis** Moench. D. Cresswell Crag.
- Stachys Betonica** Benth. D. Sheffield district.
- Stachys palustris** L. Y. Near Heeley.
- Lamium Galeobdolon** Crantz. D. Common in woods about Sheffield; Cresswell Crag; Whitwell, Wingerworth, and Ash-over (T.G.).
- Ballota nigra** L. D. Cresswell Crag.
- Plantago media** L. Y. Road-side near Ringinglow (T.G.); Anston (E.S.). D. Road-side near Fox House, Middleton Dale-Whitwell (T.G.).
- Chenopodium Bonus-Henricus** L. Y. Ecclesall (T.G.); Bolsterstone (E.S.). D. Monyash (T.G.).
- Polygonum Bistorta** L. Y. Whiteley Wood and Brincliffe (T.G.). D. Millhouses, and in woods between Norton and Eckington (T.G.).
- Rumex alpinus** L. D. Near Dore (T.G.).
- Parietaria officinalis** L. D. Cresswell Crag.
- Carpinus Betulus** L. Y. Banner Cross (T.G.).
- Empetrum nigrum** L. Y. and D. Common on the moors (T.G.).
- Taxus baccata** L. D. Miller's Dale and Middleton Dale (T.G.); Cresswell Crag.

- Listera ovata** R.Br. D. Blacka plantation, Whitwell Wood (T.G.).
- Orchis pyramidalis** L. D. Markland Grips (E.S.).
- Orchis mascula** L. D. Wood near Heeley; Miller's Dale (T.G.).
- Tamus communis** L. D. Near Heeley; Markland Grips (E.S.).
- Allium ursinum** L. D. Woods near Sheffield, between Norton and Eckington, Whitwell Wood (T.G.); Cresswell Craggs and Markland Grips (E.S.).
- Narthecium ossifragum** Huds. D. Abundant in bogs near Ringinglow, Dore, and Owler Bar (T.G.).
- Juncus bufonius** L. D. Holmesfield, Dore Moor (T.G.).
- Juncus squarrosus** L. Y. and D. Abundant on the moors (T.G.).
- Luzula pilosa** Willd. Y. Ecclesall Wood (T.G.). D. Millhouses (T.G.); near Norton (E.S.).
- Luzula maxima** DC. Y. Ecclesall Wood (T.G.). D. Millhouses (T.G.).
- Alisma Plantago** L. Y. Darnall (E.S.). D. Near Norton (T.G.).
- Potamogeton crispus** L. D. Markland Grips (E.S.).
- Scirpus cæspitosus** L. D. Moors near Sheffield (T.G.).
- Eriophorum vaginatum** L. D. Abundant on the moors (T.G.).
- Eriophorum angustifolium** Roth. D. Abundant on the moors (T.G.).
- Carex echinata** Murr. D. Moors near Sheffield (T.G.).
- Carex Goodenowii** J. Gay. D. Bogs on moors near Dore (T.G.).
- Carex lævigata** Sm. D. Bogs near Dore and Owler Bar (T.G.).
- Milium effusum** L. Y. and D. Common in woods about Sheffield (T.G.).
- Trisetum flavescens** Beauv. Y. and D. Common (T.G.).
- Arrhenatherum avenaceum** Beauv. Y. and D. Common (T.G.).
- Molinia cærulea** Moench. D. Moors near Owler Bar (T.G.).
- Melica uniflora** Retz. D. Whirlow Bridge, Eckington, Cresswell Craggs, Wingerworth (T.G.); near Heeley (E.S.).
- Bromus giganteus** L. D. Woods near Norton (T.G.).
- Lomaria Spicant** Desv. D. Moors near Sheffield (T.G.).
- Asplenium ruta-muraria** L. Y. Wall at Banner Cross (T.G.); Whitwell, wall at Norton (T.G.).
- Lastrea Oreopteris** Presl. D. Stream-sides on moors near Dore and Owler Bar (T.G.).
- Equisetum limosum** Sm. D. Little London Dam, Heeley (T.G.).

A NEW MONOGRAPH OF BRITISH LAND AND FRESHWATER MOLLUSCA.

A | Monograph | of the | Land & Freshwater | Mollusca | of the | British Isles. | By | JOHN W. TAYLOR, F.L.S., | [3 lines of titles] | with the assistance of | W. D. ROEBUCK, F.L.S., the late CHAS. ASHFORD, | and other well-known conchologists. | [woodcut] | Leeds : | Taylor Brothers, Publishers, Sovereign Street. | 1894. [Part I, issued Oct. 26th, 1894. Royal 8vo., 64 pages and coloured frontispiece].

To review the first number of Mr. Taylor's forthcoming 'Monograph of the Land and Freshwater Mollusca of the British Isles,' which he proposes to bring out in parts, is to us a pleasure. If the first number be a fair sample of those which are to follow—and knowing the intentions of the author we feel assured it is—those subscribing to this work will possess, in the near future, a book on the mollusca of their own country which will take its stand in the front rank of those which treat on British conchological science.

Of manuals which treat on British Mollusca, there are three distinct kinds. The primers—brief, specific, introductory, and intended for beginners; those larger works, which are chiefly concerned with the forms and distribution of shells; and, a third kind which includes those which seek to blend all that is interesting about molluscs, their shells and life-histories. This new monograph comes under the third class, for it recognises that shells and their makers are of equal importance, and aims to give a fair account of each. This is an age of life-history work, when the biologist seeks to complete his type, if he can, and bemoans lack of material or time if he cannot, and he has been as busy amongst the British mollusca as elsewhere. Hence it was full time that English conchology should have some recognition of this present generation—post-Darwinian era—biological work, and that a manual should be prepared to keep new students abreast of the times, as has been done amongst nearly the whole of the natural groups of animals. We know of no one better fitted to write such a book, than the author of this Monograph. To the study of British Land and Freshwater Mollusca, Mr. Taylor has devoted the best part of a lifetime, and from years of personal knowledge we know how closely he has applied himself, strictly and specially, to the subject he has undertaken to write upon and has mastered, as few in Britain have, those generic and specific differences and varietal intricacies which will be the book's chief value when completed.

We know that no scientific man has an equal or all-round grasp of the various aspects of any one subject, however small that may be or unlimited his time to devote to it. Here again the students of this monograph are fortunate, for along with the love of detail and pains-

taking care, which the author possesses in a high degree, and which are apparent on every page of the book, he has had practical experience and daily intercourse and correspondence with the real conchologists—‘the hewers of wood and drawers of water,’ as my friend, Mr. W. Nelson, aptly puts it—all over the country for many years. The highest praise we can give this book, to us far beyond even the exquisite original drawings, is its fairness in this respect. The working conchologists—the shell-men at the meetings of naturalists—see their work incorporated and acknowledged in the text, and not ignored or bracketed as if the writers were localities, nor drifted into an appendix. A book like this will make friends of co-workers, and elevate their regard for a science they have hitherto studied from real love and admiration of the dainty shell and the creeping snail.

The illustrations are numerous, truthful, and got up in a manner somewhat different from what conchologists are accustomed to since photography, a worry after half-hidden details, an artistic hand and a brain educated to recognise conchological divergences have combined to portray the most of them.

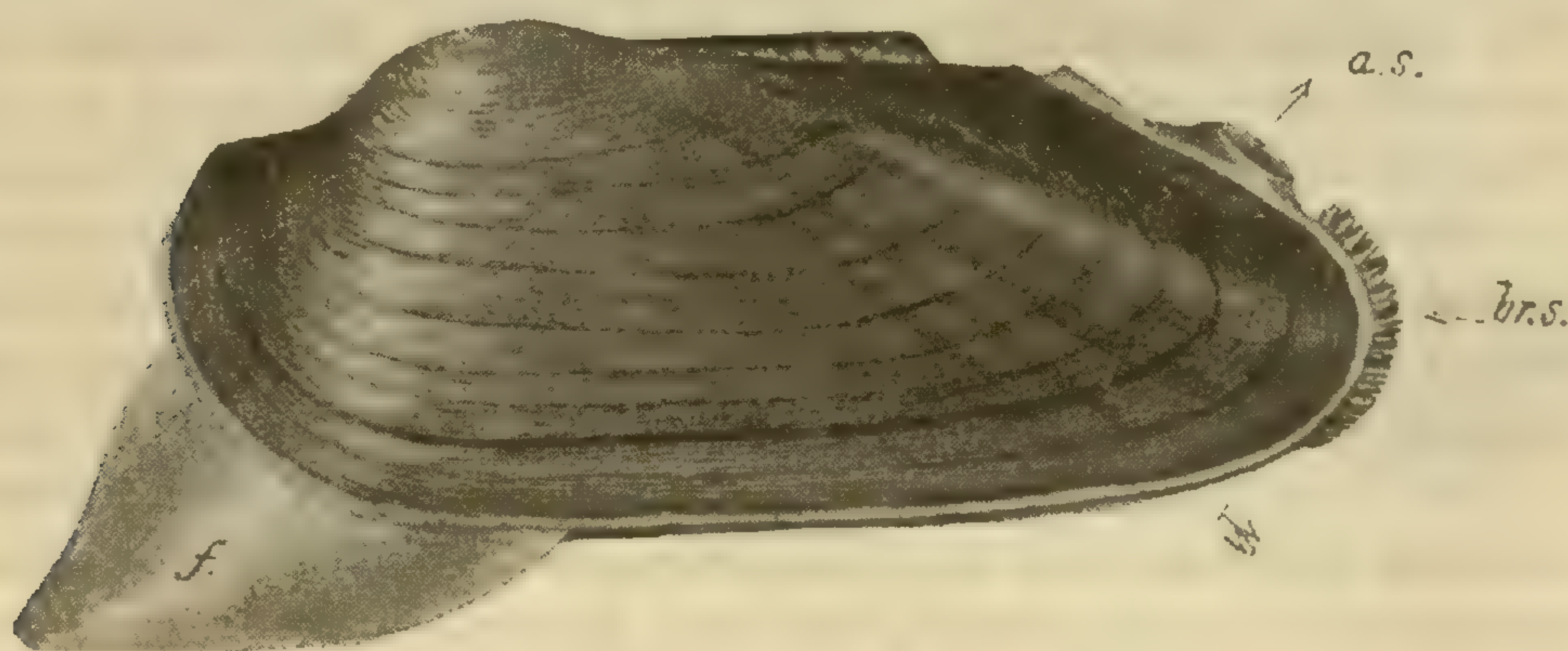
Take this little sketch of *Helix granulata* (every conchologist remembers his delight when first he turned the shell up in a damp, dark corner—maybe years ago—and saw those delicate hairs, characteristic of the species, upon it) and see if it does not express, as well as he could do it himself, at his best, that first impression of its delicate, silky, epidermal adornment.

Or again one of *Anodonta anatina*, var. *radiata* Jeffr., from the River Foss, Blue Bridge, near York, replete with delightful suggestions of the beauty of the shell, an exquisite rendering of its



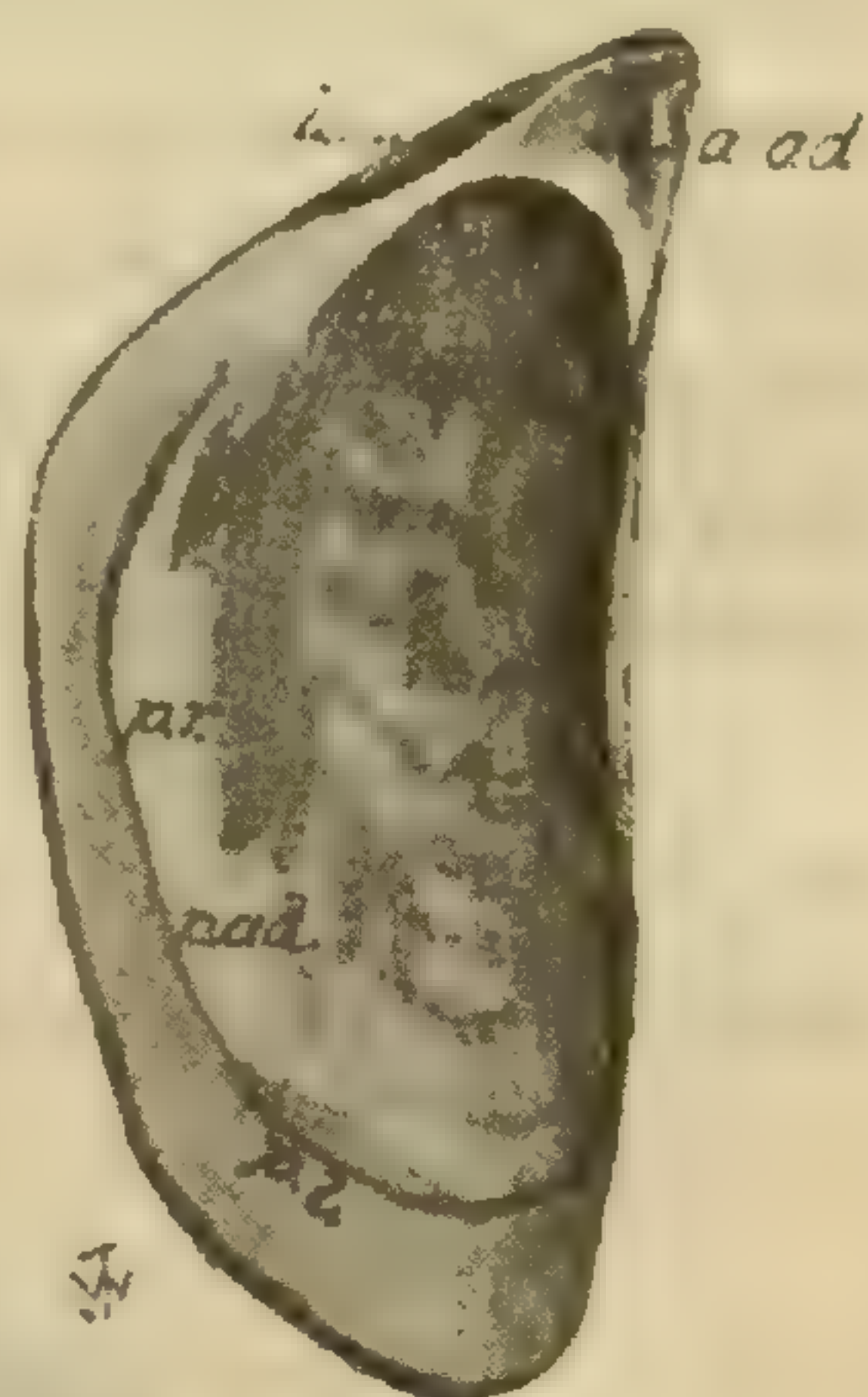
real shape and colours in black and white. The drawing revives pleasant memories of dredgings in muddy ponds fringed with rushes and overhung with willows.

Or if you are a malacologist as well as a conchologist—using the terms in a narrowed sense—this drawing of *Unio pictorum*, from Clumber Lake, Notts, graphically rendering the relationship



between the animal and its shell, will take your thoughts back to days of experiments with magenta dyes on ciliary action and Brownian movements.

Some of these illustrations are examples of painstaking work and proclaim—the word is used advisedly—little shell differences the conchologist often passes over. We would seriously ask the collector to examine the internal aspect of one of the valves of a Zebra Mussel, and then compare it with the accompanying drawing and see if this is not so; *a. ad.* being the anterior adductor scar; *p. ad.* posterior adductor scar; *p. r.* posterior pedal and byssal retractor scar; *p. l.* pallial line; and *l.* ligamental pit.



The treatment of the shell terms, LUNATE, ROUNDED, and TRANSVERSE by the author, under the heading of 'Apertures of Univalves,' are good specimens of the method of display adopted in the work; they need no comment:—

LUNATE, when semi-lunar or semi-circular, as in *Hyalinia lucida* (Drap.).

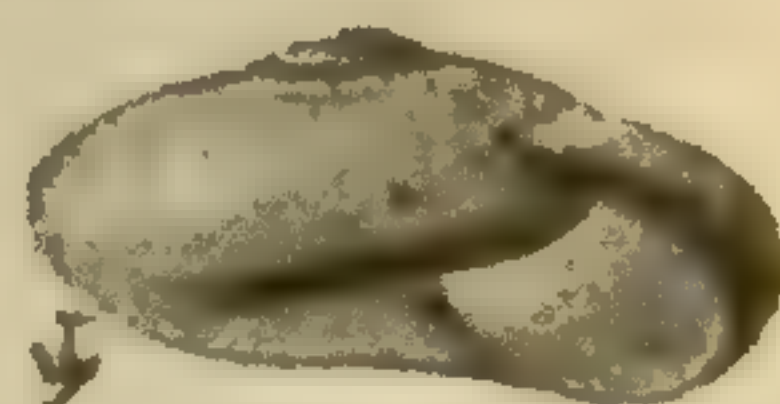


Fig. 77.—Example: *Hyalinia lucida* (Drap.) slightly enlarged, Torquay.

ROUNDED, when not perfectly round, owing to the interruption of the penultimate whorl, as in *Helix pulchella* Müll.



Fig. 78.—Example: *Helix pulchella* Müller ×8, Kennington, Berkshire.
Naturalist,

TRANSVERSE, when its greatest extension is at right angles to the axis, as in *Helix lapicida* L.



Fig. 79.—Example : *Helix lapicida* L., St. Vincent Rocks, Clifton, near Bristol.

This first part treats of the classification, nomenclature, forms and parts of shells, species and variation ; each subject is well illustrated. The student is saved the needless trouble of turning back to find the illustrations referred to in the text, as these are repeated wherever necessary—a sure way of giving the reader a clear notion of the meaning the author is wishful to convey.

In a sentence, we may say, Mr. Taylor's 'Monograph of the Land and Freshwater Mollusca of the British Isles' is a book printed on good paper, with clear type, properly displayed, excellent and original illustrations, full of close and sound reasoning, well balanced subjects, and giving (as few books have given) credit to those workers who have made and are making the study of British Conchology worth following for its own sake.

We heartily wish the author success in his work.

HENRY CROWTHER.

The Museum, Leeds, *Dec. 17th*, 1894.

NOTES AND NEWS.

Mr. P. F. Kendall's long-deferred paper, on the Glacial Geology of the Isle of Man, will occupy the forthcoming number of 'Yn Lioar Manninagh,' and we learn that this publication will thereafter cease to appear, at least in its present form.

—>oo<—

We are favoured by Mr. Harold Wager, F.L.S., who was till lately Lecturer on Botany in the Yorkshire College, with a reprint of his paper in the September 'Annals of Botany,' the title of which is 'On the Presence of Centrospheres in Fungi'—or rather, in a Fungus. *Agaricus (Mycena) galericulatus*. The paper is illustrated by a double-page plate of twenty-nine figures.

—>oo<—

In the Phytologist for March and October, 1844, the Backhouses, of York, record having botanised on High Cup Scar. Fifty years later, October 1894, the Journal of Botany has a paper by Messrs. J. G. and E. G. Baker, on 'The Botany of High Cup Nick, Westmorland,' of which a reprint lies before us; and we are glad to see that the Pennine Range has still attractions for Mr. Baker. The list is, of course, carefully done. The *Hieracia* have been submitted to Mr. F. J. Hanbury, and some of the *Epilobia* to the Rev. E. S. Marshall. The range of the various species in the locality is given in yards or feet. There is an interesting note on *Saxifraga nivalis* (found by the Backhouses), which descends here to 400-500 yards. A MS. note states that it comes down to 400 yards in Skye. The authors did not find *Polemonium*, which was recorded from between Greenburn Lead Mine and Dun Fell Hush, and they point out that this species 'is not known in the Durham or Yorkshire portion of Teesdale.' Mr. Baker considers it truly wild in the Westmorland portion, and a queried alien in the area covered by his 'Flora of the Lake District,' 1885. It has never been found in the Furness Fells since Willisel reported it to Ray. It is to be hoped that Mr. Baker's good wishes towards our Appleby contributor may be fulfilled.

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PROTOZOA, 1884 to 1892.

THE present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S.; 54, Lincoln N.; 56, Notts.; 57, Derby; 58, Cheshire; 59, Lancashire S.; 60, Lancashire W.; 61, York S.E.; 62, York N.E.; 63, York S.W.; 64, York Mid-W.; 65, York N.W.; 66, Durham; 67, Northumberland S.; 68, Cheviotland; 69, Westmorland with Furness; 70, Cumberland; 71, Isle of Man.

E. BURGESS.

Lanc. S.

Notes on some Foraminifera from the River Mersey [at Aigburth; 80 species and varieties enumerated, of which ten are new to the Liverpool M.B.C. District; the list is prefaced by remarks on a number of the species]. Trans. Liverp. Biol. Soc., vol. v., 1890-91, publ. 1891, pp. 73-80; reprinted in 3rd vol. of Reports on Fauna of Liverp. Bay, 1892, with pagination altered to 55-62.

JAMES FLEMING.

Cheshire.

Rambles during the year 1887.—Bramhall [2nd July; *Euglena*, *Trachelius ovum*, etc., noted]. Ann. Rep. Manch. Micr. Soc. for 1887, pub. 1888, p. 65.

JAMES HART.

Lanc. S.

[*Clathrulina elegans* found near Blackley by T. E. Hoyle, and near Ashton-under-Lyne by Wm. Moss]. Ann. Rep. Manch. Microsc. Soc. for 1886, pub. 1887, p. xi.

W. A. HERDMAN.

Cheshire.

Introduction [to First Report on the Fauna of Liverpool Bay; noting *Noctiluca miliaris* between Hilbre Island and Point of Ayr]. First Rep. upon Fauna of Liverpool Bay, 1886, pp. 1-15.

W. A. HERDMAN.

Isle of Man.

Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [with records of the occurrence of *Peridinium tripos* and *P. furca*]. First Rep. Fauna of Liverp. Bay, 1886, pp. 318-341, and plate 12.

W. A. HERDMAN.

Isle of Man.

The Second Annual Report of the Liverpool Marine Biological Station on Puffin Island [noting *Ceratium tripos* off the Isle of Man]. Report, 1889, separate pamphlet of 26 pages in cover, with map; also included in Second Report on Fauna of Liverpool Bay, 1889, with slightly different pagination, 24 pp., and in Proc. Liverp. Biol. Soc., vol. 3, 1888-9, publ. 1889, p. 34.

W. A. HERDMAN.

Isle of Man, Cheshire, Lanc. S. and W.

List of Papers on the Fauna and Flora of Liverpool Bay published since 1886 as a result of the L.M.B.C. investigations. Trans. Liverp. Biol. Soc., vol. 5, 1890-91, pub. 1891, pp. 62-67; reprinted as appendix to separate (4th) Report on Puffin Island Station, Jan. 1, 1891, with pagination altered to 46-51; reprinted in 3rd vol. of Reports on Fauna of Liverpool Bay, 1892, pagination again altered to 44-49.

W. A. HERDMAN.

Lanc. S.

Fifth Annual Report of the Liverpool Marine Biological Station now on Puffin Island, [recording *Vaginulina linearis* 23 miles off Southport]. Trans. Liverp. Biol. Soc., vol. 6, 1891-2, publ. 1892, p. 17; reprinted as a separate report, 1892, p. 10; and in vol. 3 of Reports on Fauna of Liverpool Bay, 1892, p. 8.

H. H. HIGGINS.

Lanc. S., Cheshire.

Pioneers in Local Biology [giving Bibliographical Notes of work done in the investigation of the Fauna of Liverpool Bay; special note on *Noctiluca* at Hilbre]. First Report on Fauna of Liverpool Bay, 1886, pp. 16-31.

T. E. HOYLE.

Lanc. S.

Rambles during the Year 1887.—Blackley [and White Moss, 16th July; *Clathrulina elegans* plentiful then, also on Feb. 18th, 1888]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, p. 65.

P. M. C. KERMODE.

Isle of Man.

Address by the Retiring President . . . delivered . . . March 11, 1886 [mentions books and papers dealing with the Manx Fauna]. Back Trans. I. of Man N. H. Soc., p. 71; published with No. 4 of Yn Lioar Manninagh, Oct. 1889.

J. M. KIRK.

York S.W.

Microscopic Life at Askern, May 20th, 1886 [included *Amæba diffluens*, *Aspidisca lynceus*, *Amphileptus fasciolus*, *Coleps hirtus*, *Dileptus folium*, *Himantophorus chaion*, *Kerona mylitus*, *Loxodes bursaria*, *Paramæcium aurelia*, *Stentor mulleri*, *Trachelocera viridis*, *Urostyla grandis*, and *Vorticella nebulifera*]. Nat., July 1886, p. 213.

J. M. KIRK.

York N.E.

[Infusoria observed by] Yorkshire Naturalists at Gormire Lake and Thirkleby Park [July 1887; *Stentor mulleri*, *Actinophrys sol*, and *Amæba diffluens* (large)]. Nat., Aug. 1887, p. 241.

J. M. KIRK.

York S.W.

[Infusoria noted by] The Yorkshire Naturalists' Union at Hatfield Chace [21st Sept., 1887; *Loxodes bursaria*, *Lindia torulosa*, *Chaetonarus latus*, *Pterodina patina*, *Stentor mulleri*, *Paramæcium aurelia*, *Actinophrys sol*, *Trachelocera viridis*, *Amphileptus fasciola*, *Coleps hirtus*, *Dileptus folium*, *Acomia vitrea*, *Urostyla grandis*, *Vorticella nebulifera*, *V. epistylis* and *V. carchesium*]. Nat., March 1888, p. 88.

J. M. KIRK.

York Mid W.

[Infusoria noted by] The Yorkshire Naturalists' Union at Harrogate [13th July, 1889; *Chilodon cucullulus*, *Dileptus folium*, *Loxodes bursaria*, *Euplotes monostylus*, *Vorticella nebulifera*, *Stentor mulleri* (abundant), *Uvella virescens*, *Paramæcium aurelia*, *Uroleptus piscis*]. Nat., Aug. 1889, p. 244.

J. M. KIRK.

York N.W.

Micro-Fauna and Micro-Flora of Upper Teesdale, September [24th,] 1889 [the *Infusoria* noted in three out of four gatherings by E. P. Knubley were *Opalina bursaria*, *Euroleptus piscis*, *Uvella virescens*, *Trachelius lamella*, *Kondylostoma patens*, *Nassula elegans*, *Ichtydium podura*, *Spathidium hyalinum*, *Kerona mytilus*, and *Chilodon cucullulus*]. Nat., Oct. 1889, p. 292.

J. M. KIRK.

York S.E.

[Infusoria observed by] the Yorkshire Naturalists' Union at Kirkham Abbey and Acklam Brow [4th Sept. 1889; *Vaginicola crystallina*, *Trochilia sigmoides*, *Loxodes bursaria*, *Scyphidia rugosa*, *Chaetonarus latus*, *Paramæcium aurelia*, *Vorticella microstoma*, *Nassula elegans*, *Epipyxis utriculus*, *Epistylis anastatica*, *Dileptus folium*, *Amphileptus fasciola*, *Chilodon cucullulus*, *Arcella vulgaris*, *Chaetomonas globulus*, *Carchesium polypinum*, and *Uvella virescens*, enumerated.] Nat., Nov. 1889, p. 343.

C. L. LORD.

York S.W.

Microscopic Pond-Life in Winter [at Hook near Goole; *Arcella aculeata*, *A. vulgaris*, *A. dentata*, *Kerona mytilus*, *Actinosphaerium eichornii*, *Actinophrys sol*, *Stentor mulleri*, *Euglena viridis*, *Peridinium*, and *Vorticella nebulifera* noted]. Sci. Goss., May 1892, p. 115.

J. E. LORD.

? Lanc. S.

Loxophyllum meleagris [described and figured; stated to be 'frequently found crawling among the water-weeds'—presumably near Rawtenstall?] Nat. World, Jan. 1887, p. 7.

J. E. LORD.

Lanc. S.

Rossendale Rhizopods. No. 1 [introductory remarks]. Sci. Goss., March 1891, pp. 58-59. **No. 2** [describes, figures, or mentions *Amœba proteus*, *A. villosa*, *A. radiosa*, *A. verrucosa*, *P. lobosa*, and *Pelomyxa villosa*, with notices of habitat, relative abundance or scarcity, etc., but from want of clearness in statement, it is not always apparent what species occur]. Sci. Goss., April 1891, pp. 84-86, and figs. 59-70, and erratum, May 1891, p. 114. **No. 3** [treats of *Diffugia pyriformis*, *D. acuminata*, *D. globulosa*, *D. urceolata* (all figured), with notes on habitats and relative frequency]. Sci. Goss., June 1891, pp. 131-133, and figs. 91-105. **No. 4** [treats of *Centropyxis aculeata*, *Arcella communis*, *A. discoides*, which are described or figured and their faunistic status given]. Sci. Goss., Aug. 1891, pp. 175-177, and figs. 152-157. **No. 4**—continued [treats of and figures *Arcella vulgaris* and two varieties, one approaching *A. dentata*]. Sci. Goss., Sept. 1891, p. 196, and figs. 170-174. **No. 5** [treats of *Nebela collaris* and *N. flabellum* in full detail, with woodcuts]. Sci. Goss., Oct. 1891, pp. 227-228, and figs. 190-196. **No. 6** [treating in detail of *Pamphagus hyalinus*, *Pseudodiffugia gracilis*, and *Cyphoderia ampulla*]. Sci. Goss., Nov. 1891, pp. 244-246, and figs. 198-205. **No. 7** [giving life-histories and details as to *Euglypha alveolata*, *E. ciliata*, *Trinema enchelys*, and *T. acinus*, with woodcut figures]. Sci. Goss., Dec. 1891, pp. 267-269, and figs. 214-223. [No. 8 includes *Actinophrys sol*, which is as common here as elsewhere, found in all our waters; of *A. picta* only one or two specimens have been found; *Actinosphaerium eichornii* occurs in one pond only, the water of which, a mill-lodge, is somewhat warm from waste steam]. Sci. Goss., Feb. 1892, pp. 28-29, and figs. 12 and 13. **No. 9** [giving an enumeration of the species found—41 in number—followed by remarks thereanent]. Sci. Goss., June 1892, pp. 129-130.

WILLIAM MOSS.

Lanc. S.

Clathrulina elegans in Lancashire [found in a pond at Ashton-under-Lyne, Dec. 19th, 1885; details given; stated to be new to England]. Sci. Gossip, July 1886, p. 165.

W[ILLIAM]. MOSS.

Lanc. S.

Fresh-water Polycystina, Clathrulina elegans [new to England; found Dec. 19th, 1885, in a pond within a mile of Ashton-under-Lyne, and again in another pond May 15th, 1886, both by the writer; and afterwards by T. E. Hoyle near Manchester; described and figured]. Ann. Rep. Manch. Microsc. Soc. for 1886, publ. 1887, pp. 39-40; also at p. xv.

W. NARRAMORE.

Lanc. S.

A Phenomenon [being a detailed account of *Stentor niger* as observed at Huyton near Liverpool]. Research, July 1888, pp. 11-12.

J. I. NEWTON.

Lanc. S.

Rambles during the Year 1887.—Ashton-under-Lyne [30th July; *Actinophrys sol*, *Stentor barretti*, *Acineta grandis* and *Ceratium longicorne* noted in ponds near Ashton Moss; the last-named also at Poynton]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, pp. 66-7.

F. G. PEARCEY.

Irish Sea.

Notes on the Foraminifera dredged by the L.M.B.C. in Liverpool Bay during 1890 [noting 63 species as found 20 miles N.W. of Bar Light Ship, seven being additions to previous knowledge for the district]. Trans. Liverp. Biol. Soc., vol. 5, 1890-91, publ. 1891, pp. 58-61; reprinted separately as Fourth Ann. Report of L. M. B. Station on Puffin Island, Jan. 1st, 1891, with pagination altered to 42-45; again reprinted in 3rd Vol. of Report on Fauna of Liverpool Bay, 1892, with pagination again altered to 40-43.

E. P. QUINN.

Lanc. W.

[Noctiluca miliaris abundant at Blackpool]. Ann. Rep. Manch. Microsc. Soc. for 1885, pub. 1886, p. 5.

M. H. ROBSON.

Durham.

Additions to the Local Fauna and Flora, with Remarks on some New Habitats, etc. [*Uvella* noted as found in a pool on Nuns Moor; and *Euglena sanguinea* in a field-pond near Ryton, July 1878; in cultivation reappeared as *E. viridis*]. Nat. Hist. Trans. Northumb. Durh. and Newc., viii., 185-189, pub. 1884.

JOHN D. SIDDALL.

Cheshire, Isle of Man.

Report upon the Foraminifera of the L[iverpool].M.B.C. District [gives introductory remarks, lists of stations, comparative lists of Liverpool Bay and Dublin Bay species absent from each other's areas, detailed notes on numerous species, and a tabular list of all the species with remarks on localities; 163 enumerated for the whole district, including North Wales, seven being expressly indicated as from North Wales only]. First Report on Fauna of Liverpool Bay, 1886, pp. 42-71, and plate 1.

H. STOLTERFOTH.

Cheshire.

Surface Dredging on the Dee [notes referring to *Noctiluca miliaris*; *Textularia variabilis* the only living foraminiferan; and two ciliated infusoria, *Peridinium* (*Ceratium*) *tripos* and *P. (C.) fusus*]. Proc. Chester Soc. Nat. Sci., No. 3, 1885, pp. 93-97.

GEORGE SWAINSON.

Lanc. W.

Saunterings along the Coast. I.—Ribble Estuary [between Lytham and St. Anne's, in March; the foraminiferon *Discorbina globularis* noted]. Wesl. Nat., Sep. 1888, p. 204.

M. L. SYKES.

Lanc. S.

Rambles during the Year 1887.—Worsley [Aug. 27th; *Stentor* (two species), *Vorticella* and *Amœba* noted in ponds]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, p. 68.

E. H. TURNER.

Cheshire.

Kerona [or Cerona] polyporum: parasite on Hydra fusca [found at Bramhall, 2nd July, 1887; the animal described and figured]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, pp. 34-36, and p. x.

E. H. TURNER.

Cheshire.

[Kerona polyporum and Trichodina pediculus noted on Hydra fusca from a pond at Bramhall, 2nd July, 1887, visited by Manchester Microsc. Soc.]. Nat. Monthly, Oct. 1887, pp. 39-40.

W. BARWELL TURNER.

York S.W.

Microscopic Life near Askern [20th May, 1886; *Arcella vulgaris*, *A. aculeata*, *Diffugia* sp., *Duisbryon sertularia*, *Paramacium* sp., *Trachelius lamella*, *Chaetonotus*, *Euglena pyrum*, *E. viridis*, and *Chilodon cucullulus* noted]. Nat., Sep. 1886, p. 279.

J. STANLEY TUTE.

York Mid W.

Microscopic Fauna and Flora of Markington, Mid-West Yorkshire

[*Amœba diffluens*, *Actinophrys viridis*, *Arcella vulgaris*, *A. aculeata*, *Dileptus folium*, *Stentor polymorphus*, *Vorticella microstoma*, *Ophrydium versatile*, *Cothurnia imberbis*, *Vaginicola crystallina*, *Epistylis anastatica*, *Loxodes bursaria*, *Paramœcium aurelia*, and *Peridinium cinctum* enumerated, with localities]. Nat., May 1890, pp. 151-152.

GEORGE ROBERT VINE.

Linc. N.

Notes on Polyzoa found at Cleethorpes in 1875, 1879, and 1882 [with a concluding reference to *Planorbulina lobatula* being the forma of *Foraminifera* most frequently met with]. Nat., Jan. 1892, p. 11.

CHAS. H. H. WALKER.

Cheshire.

Microscopical Notes [on the Cheshire side of Mersey, 25th May; *Vorticella nebulifera*]. Young Nat., Sep. 1889, p. 186.

NOTE—COLEOPTERA.

Monochammus sutor in Yorkshire.—A male specimen of this handsome beetle, which had been caught in the workshop of one of the timber merchants in Leeds, was given to me on August 14th, this year. It was kept alive for over a month by feeding it on small cubes of cabbage, cut from the midrib of the leaf, which enabled me to measure approximately its rate of feeding. I kept it under a large bell-glass, up the sides of which it could travel with ease, falling only when it got too far on the rounded dome of its prison. By some accident the right anterior tarsus was injured and the power of climbing glass was denied it, and one witnessed, when it was not asleep or feeding, a constant but unsuccessful attempt, on its part, to climb the bell-glass by substituting the middle foot for the injured fore-foot. It fed well, especially towards midnight, and died apparently because, as a male, its period of life as a perfect insect was short. When feeding the long antennæ were always curved and the tips—nearly four inches apart—were in constant motion, though the cube of cabbage on which it fed was more than an inch away from them. When walking on my hand it sometimes paused to bite it. Its feet were well adapted for climbing, being furnished with concave pads of curved hairs, those on the anterior pair of tarsi being one-third larger than those on the middle and posterior pairs. The weight of the insect, the shifting of its equilibrium, and the inability to apply the pads of the right mid-foot effectively, were probably the causes why the *Monochammus* could not ascend a glassy surface after it was injured. On examining the tarsi, without attempting to dissect them, as the insect was sufficiently valuable to preserve entire, I made out several points of interest. The claws on the last joint (onychium) were long, sharply pointed, strongly curved, and almost at right angles to the joint; the third joint was deeply bilobed, its distal portions somewhat enwrapped and supported the onychium. The first, second, and third joints were provided with pads of curved hairs; all the joints had on their dorsal aspects strong straight hairs, and on their margins long simple hairs which curved downwards and curled in towards the pads so conspicuously as to give the tarsi a feathery appearance. The hairs which formed the pads were curved backwards, their tips being flattened and terminated by acuminate ovate areas. On these areas and projecting from the *outer* or *dorsal* aspect of each hair were patches of six to eleven short, conical spines inserted at right angles to the hair which carried them. Supposing each pad to have been made up of 1,000 curved hairs, and probably there were many more, and that each of these carried an average of eight conical spines, there must have been over 140,000 spines on the feet of the beetle I was examining. Small need to wonder at the ease with which it went up a wall of glass. As only about half-a-dozen records of the occurrence of this beetle are known in Britain, and so far as I can learn none for Yorkshire, this record and note may be of some interest to coleopterists.—HENRY CROWTHER, F.R.M.S., The Museum, Leeds, November 19th, 1894.

NOTES ON THE CHEMICAL ANALYSIS OF CERTAIN ROSACEÆ.

P. Q. KEEGAN, LL.D.

Patterdale, Ulleswater.

THE following notes summarise the results of a series of chemical analyses effected on various parts and organs of several of the common species of the extensive and interesting order *Rosaceæ*. A strict quantitative analysis was not attempted, the main object of the investigation being to trace a connection between the vivid and powerful pigments exhibited by the floral organs, leaves, etc., and the products of metabolism such as can be referred to the benzene or other series of hydrocarbons noted for their colour-producing properties. In some instances the conclusions here reached are more or less conjectural; but all the while the link of analogy between these and other unquestionable cases is so close and clear that tolerable certainty is fairly warranted. Some of the results have been already published by eminent chemists; others are, so far as I am aware, here signalised for the first time. All the plants analysed were obtained within the boundaries of the Lake District—a region not unprovided in most parts with climatic and other agencies suited to develop to the full the wealth of colouration, which is the eminent characteristic of the *Rosaceæ*.

Hawthorn (*Cratægus oxyacantha*). The flowers of the ordinary white variety contain a yellow colouring matter, rutin, $C_{42}H_{50}O_{25}$, but no tannin could be detected; their odoriferous principle is nitrogenous, and it is probable that the beautiful crimson of certain flowers of this species is due to a decomposition product thereof, as this does not re-act in the same manner as the ordinary anthocyan of the rose, etc.; the flowers distilled with aqueous potash yield trimethylamine $(CH_3)_3N$, a body with a fish-like odour. The buds contain amygdalin; and the leaves analysed on September 2nd, yielded an iron-greening tannin, which precipitates gelatine, but not tartar-emetic; it yields a phlobaphene with acids, and boiled with caustic soda assumes a fine red colour—it is thus allied to the tannin of the *Coniferæ*. The bark of the branches has a bitter principle, cratægin, and also amygdalin, which is the glucoside of the oil of bitter almonds.

Mountain Ash (*Sorbus aucuparia*). The composition of the flowers of this tree is very similar to those of the hawthorn, but in addition they contain amygdalin, and hence, on soaking and distilling

with water they yield the poisonous prussic acid. The bark contains a tannin with reactions similar to those of the Hawthorn, Horse-chestnut, and Tormentil root. The leaves contain a considerable quantity of a tannin which is similar to that of the bark, and seems associated with rutin, much mucilage, resin, and phlobaphene. The unripe berries have much malic acid, with small quantities of citric and tartaric acids, also amygdalin, emulsin, sorbitol $C_6H_{14}O_6 + H_2O$, glucose, and a volatile acid with a repulsive odour. The ripe berries contain a very acid tannin allied to caffetannin, which on oxidation yields protocatechuic acid; their colouring matter is due to carotin.

Wild Rose (*Rosa canina*, etc.). The flowers of all roses have the same chemical composition, viz., a little volatile oil very rich in hydrogen, a tannin with reactions similar to that of the oak bark, also rutin, fat, resin, sugar, tartaric and malic acids. The colour-producing properties of the tannin are enhanced by the presence of rutin, and their oxidation products ensure that the real colour of a rose is red, and never can be blue. The leaves are similar in composition to the flowers, but of course have more wax, also carotin, chlorophyll, coniferin, etc. The hip or fruit has much carotin in its outer layer, also rutin, an iron-greening tannin, with much gum, sugar, and citric and malic acids, with their salts, in the pulp.

Alpine Lady's Mantle (*Alchemilla alpina*). The plants of this species examined were collected at a height of about 900 feet. Its range, however, extends to over 3,000 feet, and as is well known, it is entirely confined to the slate hills, being absent from Durham and Northumberland, and from nearly the whole of Yorkshire. The most obvious features of its analysis are its abundance of chlorophyll and of starch and other products of assimilation, while the morphology indicates an intense transpiration. The petroleum or benzene extract of the plant contains carotin, a white wax, palmitic acid, and a little olein. The alcohol extract has no rutin, nor citric acid; it contains a tannin which precipitates gelatine, tartar emetic, and sulphate of quinine, with iron salts a blue-black precipitate, with protosulphate of iron a red-purple precipitate; it is also precipitated by perchloride of tin, bichromate of potass, and acetate of copper; its lead salt is insoluble in acetic acid; boiled with dilute sulphuric acid it yields a red-brown phlobaphene which fused with potass gives protocatechuic acid and phloroglucol. The aqueous extract (after above) has mucilage, and citric and malic, but no tartaric acid. After extracting with benzene, the plant, on boiling with lime-water, has some quinic acid apparently, and a substance soluble in alkalies and in hot alcohol which, with sulphuric acid and sugar, gives a red-brown or crimson colour, changing to bluish-green.

Great Burnet (*Sanguisorba officinalis*). The composition of this plant seems to vary with the season. Thus the stem and leaves obtained on July 17th were found free from tannin, but yielded a large quantity of a yellow colouring matter which gave all the reaction of rutin (quercitrin); but the same parts examined in early September revealed the presence of a tannin which was iron-blueing, precipitates gelatine and tartar-emetic, and resolvable into a red-brown phlobaphene by the action of dilute sulphuric acid. The flowers owe their tints to a pigment which is perhaps the most remarkable body of its kind in the whole order. Its extreme depth and vividness can only be duly appreciated when it is extracted and more or less isolated. It is evidently the product of a very high stage of oxidation, as when the flowers are analysed they are found to contain a body which seems allied to, if not identical with, ellagotannin $C_{14}H_{10}O_{10}$, which is the most highly oxidised of vegetable astringents.

Blackberry (*Rubus fruticosus*). The leaves of this shrub are well prepared to withstand the winter chill, being richly charged with wax, fatty acids, and resinous matters. The alcoholic extract (after benzene) contains a tannin which yields no phlobaphene and gives the reactions of ellagotannin; there is also a resinous body which is probably identical with the coniferin of Tangl; there is very little proteid matter in the leaves, but the presence of mucilage, sugar, and starch is strongly evidenced. The colour of the stem seems to be due to paracarthamin $C_{40}H_{48}O_{21}$, which in winter exhibits a red tint (acid) on one side thereof, and a green tint (alkaline) on the opposite side. The flower heads contain the same kind of tannin as the leaves, but its powerful tinctorial properties are apparently reserved till the fruiting period. The formation of the fruit is evidently attended with great oxidising energies, as the petals contain little or no soluble pigment (anthocyan), and the well-known 'black' (really dark red or purple) of the berries has very probably the same origin as the colouring matter of the flowers of the burnet and marsh cinquefoil.

Common Avens (*Geum urbanum*). There is nothing of positive interest connected with this plant, the signal facts being that the flower pigment is totally independent of the leaves, and that there exists a small quantity of a tannin, which is probably quercitannin, scarcely sufficient to impart any colouration to flower or leaf.

Silverweed (*Potentilla argentea*). There does not exist any tannin in any part of this plant, its place being taken by rutin, which exists in all parts. The colour of the petals is due to chromoleucites tintured by carotin; and it is singular to notice how these bodies seem to appear always in corollas in cases where

the leaves are unfitted or unable to produce tannin-forming materials.

Tormentil (*Potentilla tormentilla*). The modest aspect of this lowly, faint-peeping plant offers no betrayal of the powerfully efficient chemical energies which play within. The chief interest centres in the root, which contains a small quantity of ellagic acid, $C_{14}H_6O_8$, a large quantity of quinovic acid, $C_{24}H_{38}O_4$, and a tannin which is identical with the well-known astringent of the horse-chestnut bark, being iron-greening, yielding a phlobaphene, and not precipitating tartar emetic. The leaves and stems contain a small quantity of the same tannin; and it may be noticed that when its lead salt is boiled with dilute hydrochloric acid, the filtrate yields the reactions of paracarthamin, a body allied to the colouring matter of blue and red flowers. Nevertheless, its quantity in leaf and stem is not sufficient to affect the corolla of this species.

Meadow Sweet (*Spiræa ulmaria*). This is one of the most chemically prominent of all our common wild flowers. Its powerful perfume is due, not to a volatile oil, properly so called, but to an aldehyde of the benzoic series. When the flowers are distilled with water the aldehyde (salicylol), a hydrocarbon, a solid camphor, and a small quantity of salicylic acid are obtained. The last exists, *ready formed*, in the flowers, which also contain a tannin which precipitates gelatine and yields a phlobaphene; also a yellow crystalline colouring matter giving the reactions of rutin. The leaves of the plant contain a considerable quantity of a tannin with reactions identical with that of tormentil root. The red colouring matter of the rachis of the leaf is probably the catechin or phlobaphene of this tannin.

Wild Cherry (*Prunus avium*). The chemical analyses of the several parts of this eminently beautiful tree presents certain difficulties, but the following enumeration of their constituents is, I think, tolerably accurate. When the alcoholic extract of the bark is evaporated to dryness, the residue dissolved in hot water, and the solution shaken with ether, the latter extracts a substance which yields the reactions of phloroglucol $C_6H_3(OH)_3$. This phenol is well-known to micro-chemical botanists, who use it extensively to detect the presence of lignin in vegetable tissues—the lignified parts (as distinguished from pure cellulose) giving with it and HCl. a splendid violet tint turned yellow by alkalis. The tannin of the bark is identical with that of the horse-chestnut and tormentil. There is no quercitrin (rutin) in the bark, nor is there any phlorizin (the glucoside of the apple tree) in any part of the organism. The rich brown colour of the stem is due to the phlobaphene of the tannin combined, no doubt, as in cinchona, with a dark humus

decomposition product. The leaves have little or no free palmitic acid, but have the usual amount of wax, carotin, etc. ; they contain rutin, very little tannin, also coniferin, much mucilage, and very little starch. The red pigment of the autumnal leaves is probably an anhydride (catechin) of the tannin, which apparently increases in quantity on the approach of autumn.

NOTE—BOTANY.

Singular Discovery of *Sisyrinchium angustifolium* in Cumberland.—Mr. W. Hodgson, A.L.S., of Workington, Botanical Recorder to the Cumberland and Westmorland Association for the Advancement of Literature and Science, at the conclusion of his report for 1892-3, read at Tullie House, Carlisle, April 17th, 1894, thus referred to the discovery of the so-called 'blue-eyed grass of Canada,' in the grounds of Mr. Robertson-Walker, at Gilgarron, about five miles inland from Whitehaven:—'Before bringing my scattered remarks to a close, I may be permitted a few words of comment on a curious discovery made at Gilgarron in the early summer of 1893. At the edge of a broad gravel-walk which separates a fine border of annual and deciduous flowering plants from a shrubbery, and immediately under the shadow of a clump of evergreens, Mr. Charles Stratton, a very observant and intelligent member of the gardening staff at Gilgarron, detected the presence of a 'stranger' among the plants in the shade, which he had no difficulty in identifying as the above species. Heretofore it has been considered as doubtfully indigenous in the British Islands only towards the S.W. coast of Ireland.' The following is an extract from 'A Sketch of the Botany of Ireland,' by Mr. A. G. More, F.L.S., 74, Leinster Road, Dublin, formerly curator of the Museum of Natural History in the Irish capital:—'This species grows in great abundance between Woodford bog and Lough Derg, in county Galway, and has recently been found near Milltown and Killorglinn, and sparingly in a few other scattered localities in Kerry.' The *Sisyrinchium* has given much trouble to botanists, for it is difficult to decide whether it should be considered a native, i.e., as having reached Ireland before the advent of man, or whether it may have spread originally from gardens, as it is a plant which has shown elsewhere extraordinary powers of spreading where it has once been introduced. Bentham clearly supports the *native* view of the matter, as he remarks:—'In Britain found only in Kerry and Galway in Ireland, where there seems no ground to suppose that it can have been introduced by human agency.' How, then, you may ask, did it come to Gilgarron? Mr. Stratton has no knowledge of its introduction, either in his own time or that of his predecessors, so far as he has been able to establish by inquiries, which have yielded no result. He suggested that it may have been present for a length of time without being previously observed. My objection to this theory was prompt. I declared my conviction that it was impossible for him to be constantly passing the place without having his attention at once attracted by so interesting a rarity. We were thus compelled to give up the fact of its appearance as for the present inexplicable. I have only to add that it shows signs of rapid extension.

NOTES AND NEWS.

The Proceedings of the Royal Society of Queensland for 1892-94 contains an obituary notice of Dr. Joseph Bancroft, who was a member of the Society from its inception and President in 1884-85. He was a Lancashire man by birth, a native of Stretford, near Manchester, and became a Queenslander in 1861, after having first practised medicine for five years at Nottingham. He paid much attention to the economic side of natural history, and while in Nottingham experimented on the transmission of eggs of salmonoid fish to New Zealand and Tasmania, and actually assisted in packing for transit the first batch of trout eggs that ever reached the colony alive. He died at Brisbane on the 16th June, 1894, at the age of 58.

ADDITIONS TO THE LIST OF WATER-BEETLES TAKEN NEAR AYTON, SCARBOROUGH.

REV. W. C. HEY, M.A., M.C.S.,

Vice-President of the Yorkshire Philosophical Society, West Ayton, near Scarborough.

SINCE the list of Water-Beetles taken by me this year in this district was published (see 'Naturalist,' July 1894, pp. 201-203), I have made the following additions to it:—

Hydroporus tristis Payk. Abundant in a bog on Sawdon Moor.

Hydroporus gyllenhalii Schiödte. One example from Seamer.

Hydroporus morio Dej. A somewhat doubtful-looking insect I took at Seamer is considered by Canon Fowler to be a light coloured example of this rare species.

Hydroporus melanarius Sturm. Rather common in some boggy places on Hutton Buscel Moor, as well as at Sawdon in company with *H. tristis*.

Agabus nebulosus Forst. In a pool on Filey cliffs in July.

Orectochilus villosus Müll. Under gravel by the river-side near Langdale End, and at the mill-dam at West Ayton.

Hydræna testacea Curt. I have taken four specimens in a small pond at East Ayton in November.

Hydræna riparia Kug. This occurs with the preceding and much more plentifully.

In the previous list, *Hydræna palustris* was recorded. Although this identification rested upon the highest authority, further investigation throws a doubt upon it, and it is very uncertain to what species the individual specimens are to be referred. Possibly they are a dwarf and uncharacteristic form of *H. angustata*.

NOTE—COLEOPTERA.

Bembidium nigricorne in Yorkshire.—I was much interested with the Rev. Alfred Thornley's note (Nat., 1894, p. 368) recording the capture of *B. nigricorne* on Rombalds Moor, Ilkley. He is, however, mistaken in supposing the species to be new to Yorkshire; if he will refer to the 'Naturalist' for 1889, p. 278, he will there find it recorded for Shipley Glen, which is practically the same range of moorland, only his locality is in Wharfedale, whilst Shipley Glen is in the Aire valley. Since my record in 1889, I have found two more examples, although I have never worked assiduously for it.—J. W. CARTER, Manningham, Bradford, Dec. 17th, 1894.

A LIST OF THE ARANEIDEA OF CUMBERLAND AND THE LAKE DISTRICT.

REV. FREDK. O. PICKARD-CAMBRIDGE.

SINCE the year 1875 no list has been published of the spiders of the northern counties of England. In February of that year a list of the species collected in Berwickshire and Northumberland was drawn up by the Rev. O. Pickard-Cambridge, including the names of 145 species taken in the latter county.

Having made a few small collections myself in the neighbouring counties of Cumberland and Westmorland, including the Lake District, I have thought that it might be interesting to northern naturalists if a complete list were published of the *Araneidea* of this district, including in an appendix those from the Rev. O. Pickard-Cambridge's List which do not occur in my own.

I have considered it better not to incorporate these latter with those from the two western counties, because, geographically, Cumberland and Westmorland pair very well with each other as balancing Northumberland and Durham on the eastern side of the Pennine Chain; while further south, Lancashire and Yorkshire form very convenient separate areas of themselves.

The Araneidal Fauna of the northern counties of England is so far similar to that of the Lowlands of Scotland (roughly speaking, the area cut off by a line drawn from Glasgow on the west to Edinburgh on the east), that I should not think my duty to arachnology complete were I to omit making some mention of the valuable lists which have already appeared of the species taken in this district, including also some few species taken in the more northern regions of Scotland.

The first list was published by Mr. James Hardy in 1858. '*A List of Berwickshire Spiders.*' Proc. Berwickshire Nat. Club, vol. iv., pp. 92-96, 1858.

The second by the Rev. O. Pickard-Cambridge in 1861-62. '*Sketch of an Arachnological Tour in Scotland in 1861, with a List of Scotch Spiders.*' Zoologist, pp. 8,041—8,051, 1862. This same list was published also in the Entomologist under the following title: '*On the Spiders of Scotland; with a List of Species.*' Entomologist, 1877.

A third list was issued by the same author in 1875. '*List of the Araneidea and Phalangidea, collected from October 1871—October 1874, in Berwickshire and Northumberland, by Mr. James Hardy.*' Proc. Berwickshire Nat. Club, vol. vii., pp. 307-323, 1875.

Another list was contributed by Mr. H. C. Young, of Glasgow, to the 'Proceedings of the Glasgow Nat. Hist. Society,' vols. iii. and iv. (Mr. Young's collection, or a portion of it, is now in the Museum of the University of Glasgow, where I had the pleasure of seeing it in January, 1892).

The fifth list was published in 1878, by Prof. J. W. H. Traill: '*A List of Araneidea (Spiders) of Dee.*' Trans. Nat. Hist. Soc. of Aberdeen, 1878, p. 48. Other notices by Mr. Traill appeared in the pages of the Scottish Naturalist, vol. ii., pp. 23-25 and p. 300.

Lastly, we have before us a most valuable list of the *Araneidea* collected in the neighbourhood of Edinburgh by Mr. W. Evans, F.R.S.E., published in the year 1894, by Messrs. G. H. Carpenter, B.Sc., of Dublin, and W. Evans, F.R.S.E., of Edinburgh. '*A List of Spiders (Araneidea) collected in the neighbourhood of Edinburgh.*' Proc. Roy. Physical Soc. of Edinburgh, vol. xii., pp. 527-590; with appendix and plate. The treatment of the subject-matter in this work is everything that can be desired, and although I have not myself leisure for records so accurate and elaborate, yet one would urge on those who may in this matter be more fortunate, the extreme value of accurate records of dates, stages of maturity, and localities, such as we are presented with in this highly readable little pamphlet.

Since, however, we are not dealing *directly* with the Fauna of Scotland, I must confine myself to the records contained in the Berwickshire and Northumberland List, and of these, those only which refer to the latter County alone.

In this List we find out of the 145 species recorded 32 which have not, so far as I am aware, been taken in the district west of the Pennines of which we here treat; and their names will be found below.

For the arachnologist, as well as for the general naturalist, Cumberland and the Lake District, including, of course, Westmorland, form an area which can be roughly divided into several regions distinguished by well-marked characteristics.

Embracing the whole district, bounded by the Solway Firth, the rivers Esk and Liddle on the north, the Pennine Hills, including Christenbury Crag, Bewcastle Fells, Cross-Fell and Mickell-Fell on the east and south-east, Morecambe Bay on the south and the Irish Sea on the west, we find an area of extreme diversity of physical characters, and one which is, with few exceptions, perhaps none, the most interesting district in Great Britain, whether for the tourist, the artist, or the naturalist.

Within these comparatively narrow limits we can explore the deep, richly-wooded, red sand-stone gorges, through which wind and fall the swift currents of the Eden, the Irthing and the Caldew, their margins and dells encrusted with rocks and scattered stones, or dankly dripping with tufted water herbage in the deep still defiles; we can roam over the vast stretches of thinly clad alluvial deposits which mark the blending of fresh and salt waters along the shores of the Solway Firth, and note the regiments of godwits, oystercatchers and other waders, as fringing the ebbing tide they peep and dibble for their daily food. Further south we can tramp laboriously over wind-driven sand-dunes, the crisp, whistling 'marram grass' striking accurate circumferences on the sand, as the blades bend and gyrate with the breeze; we can climb the lower fell-sides, knee-deep in heather, and capture forms familiar to us in the far heath districts of the south, or startle to flight the unaccustomed northern grouse. Higher still we can mount into the weird upper-fastnesses of the slate-founded hills, where snow—alas for us—is not eternal, though we are proud to think that here it 'sometimes lingers into June'; and hence, finally, we can allow ourselves to sink gently down the silent passes into the verdure-clad Borrowdale, where, amid foods and comforts for the body, we may reflect, that though maybe the garden of England lies in the far south-east, yet the glory of England assuredly is set in the extreme north-west.

It will be very obvious to those who have tramped over this region, rich in variety of soil and growth, that here too, we may expect a like variety of creeping things, and of these too, abundantly. Neither shall we be disappointed, for although the appended list of the 'Araneidea' is so meagre, we must remember that with merely a month's collecting at scattered intervals in the Lakes, and a few days every spring for three or four years in the neighbourhood of Carlisle, we are not likely to be able to give more than a very poor account of the Spider-Fauna of this charming country.

There are numbers of species yet to be discovered, many of them probably new to science, at all seasons of the year in each of these well-marked areas; for even during the casual opportunities I have been able to avail myself of, no less than ten species have been taken, of which five are new to science and the rest to the British List.

Of the 184 species recorded, we may mention amongst the rarest and most interesting *Hyptiotes paradoxus*; *Lycosa spinipalpis*, n. sp.; *Pardosa purbeckensis*, n. sp.; *Cryphæa diversa*, n. sp.

Bathyphantes setiger, n. sp.; *Oreoneta niger*, n. sp.; *Leptyphantes pinicola*, new to Brit. List; *Leptyphantes tenebricola*, new to Brit. List;

Lophocarenum mengei, new to Brit. List. ; *Coryphæus distinctus*, new to Brit. List ; *Tetragnatha pinicola*, new to Brit. List.

Pardosa traillii, *Dendryphantes hastatus*, *Microneta sublimis*, *Decymbium tibiale*, and *Agræca celans* ; the first and third of the last five being only the second record for Great Britain.

The areas into which I have roughly divided this district may be characterised as follows :—

Eden Valley District. The valleys through which run the Eden, the Caldew, the Esk, and the Irthing, consisting of more or less undulating country, richly wooded and clothed with rank vegetation in the glens, gradually blending in their upper reaches with the heather regions and higher moorlands of the Fell-country. There are, of course, regions of somewhat similar character in other parts of the Lake District, formed by the water-courses which empty themselves on the west into the Irish Sea, and on the south into Morecambe Bay.

The Solway District is an immense tract of level mud and sand, meadow and marsh land, forming ‘the delta’ of the united waters of the four rivers mentioned above. And in connection with this must be recollected certain areas and spots of a swampy, rushy, boggy nature, known as the ‘Mosses,’ amongst which may be noted Solway Moss and Newtown Moss, near Penrith. These, in some respects, resemble similar localities in the south of England, and their Spider-Fauna is, as might be expected, with certain striking exceptions, almost identical.

The Lake District itself is too well known to need particularisation here ; it will be sufficient to remark that that whole district is included, which can be enclosed in a ‘ring-fence’ by a line connecting the towns, travelling as the sun goes, of Penrith, Shap, Kendal, Grange, Ulverston, Bootle, Gosforth, Cleator-Moor, and Cockermouth.

The region of sand-dunes lies to the south of the entrance to the Solway Firth, extending, with interruptions, as far as St. Bees, and beyond this, further south, with a coast-line of broken character, until it becomes lost in the vast sand-stretches of Morecambe Bay.

The geology of this district is of a very uniform character, consisting entirely of the two forms of slate known as the Skiddaw and Green-slates, with an occasional out-crop of Granite, on Scafell for instance, and in Wastwater ; Syenite in the Ennerdale Valley ; with a mere streak of Limestone running from Coniston in the direction of Windermere and Long-Sleddale. These geological characters, with the New Red-Sandstone of the Eden, Armathwaite and Penrith districts, undoubtedly furnish us with a country whose

physical constitution and consequent climatic temperament should afford us a fauna of a somewhat different nature to that to which we are accustomed on the limestone and chalk-formations of the South of England.

One must not, however, venture to speculate too freely in this direction, because we have not as yet nearly enough data for the building up of theories concerning racial varieties peculiar to different geological formations, or even to hastily point to this or that species or group of species as exclusively characteristic of the Lake and Mountain country. I can, however, point to a few species which, pending further information, may be regarded as peculiar not only to our own hill-country, but also, many of them, characteristic of the hill-districts of the Continent, as for instance, the sub-alpine regions of France, the Austrian Tyrol, the mountains of Tatra, Silesia, Galicia, and the Highlands of Germany; namely, *Bolyphantes alticeps*, *Lepthyphantes tenebricola*, *L. pinicola*, *L. lepida* (Glasgow), *L. angulata*, *L. whymperi* (Ben Nevis), *Micryphantes sublimis*, *Porrhomma adipatum*, *Oreoneta niger* and *Pardosa traillii*.

With these few preliminary remarks we will proceed with a Systematic List of the various species found in Cumberland and the Lake District.

Order. ARANEIDEA.

ARANEÆ VERÆ CRIBELLATÆ.

Fam. ULOBORIDÆ.

Hyptiotes paradoxus C.L.K. Lake District. A single female, taken in the Lake District of Cumberland by Mr. J. Hodgkinson in the year 1863, was, until this year, 1894, the only specimen of this extraordinary spider recorded for Great Britain. Males and females, adult, were taken in the New Forest in August 1894, by Mr. C. Warburton, of Christ's College, Cambridge. The specimen taken by Mr. Hodgkinson was presented to me by Mr. R. H. Meade, of Bradford, and is now in my collection.

Fam. DICTYNIDÆ.

Amaurobius ferox Walck. Eden Valley. A few specimens only, in Carlisle.

Amaurobius similis Blk. Eden Valley, Solway, and Lake District. Abundant in quarries, on walls around farm-buildings; in the crevices of the red-sandstone cliffs all through the Eden Valley; and amongst the slate cliffs of the Lake District. Carlisle, Gilsland, Helvellyn, Elterwater. Adult from April to September.

Amaurobius fenestralis Ström. Eden Valley and Lake District. Very abundant on every wall throughout the Fell country, and also under stones on the hills in the Lake District. Common also under stones in the neighbourhood of Armathwaite, Talkin Tarn, Helvellyn, Elterwater, Penrith Beacon. Adult from April to September.

Dictyna arundinacea L. Lake District and heather regions of the Fell country. Not uncommon. Elterwater and Tilberthwaite Fells. June 1891.

Dictyna uncinata Thor. Eden Valley and Lake District. Very abundant in and about the gardens and shrubberies, near Carlisle. Both sexes are adult in May. Elterwater.

ARANEÆ VERÆ ECRIBELLATÆ.

Fam. DYSDERIDÆ.

Harpactes hombergii Scop. Eden Valley; Armathwaite; Carlisle. Lake District; Elterwater; Derwentwater; Borrowdale. Adult: April, May, June, and July. Common.

Segestria senoculata L. Lake District; Penrith; Elterwater; Derwentwater; Ambleside; Borrowdale; Helvellyn. Common under the coping-stones of the walls all through the Lake District. Eden Valley; Armathwaite; Carlisle. Adult in July. Common.

Fam. OÖNOPIDÆ.

Oönops pulcher Templ. Lake District; Elterwater. Rare. Adult in July.

Fam. DRASSIDÆ.

Drassodes lapidosus Walck. (*Drassus lapidicolens* Cb. Spiders of Dorset.) Found in profusion throughout Cumberland and the Lake District, beneath stones on the fell-sides and mountain slopes. Adult from May till September.

Drassodes troglodytes C.K. Not abundant. Under stones on the fell-sides in the Lake District. Langdale and Elterwater. Adult in June and July.

Fam. THERIDIDÆ.

Ero furcata Vill. (*E. thoracica*—Spiders of Dorset.) Cumberland. Eden Valley and Solway districts. Not common. Lake District, Elterwater, in June.

Episinus truncatus Latr. Cumberland. Eden Valley District. Not common.

- Nesticus cellulanus** Clk. Cumberland. Eden Valley. Wetheral and Gilsland. Common under damp herbage growing upon the overhanging rocks along the river margin. The Gelt, near Carlisle. Gilsland. Adult in May and June.
- Theridion tepidariorum** C.L.K. Cumberland. Eden Valley District. Abundant in greenhouses at Carlisle and Dalston.
- Theridion sisypium** Clk. Cumberland. Eden Valley. Plentiful on holly and gorse bushes in the neighbourhood of Carlisle.
- Theridion pictum** Wlk. Eden Valley District. Abundant in the nursery gardens in the neighbourhood of Carlisle; also occurring more sparingly on furze-bushes along the banks of the Eden. The beautiful tent-like retreat, constructed amongst the foliage of shrubs and bushes, renders this species and the last especially interesting to the lover of 'natural history in the field.' Adult in June.
- Theridion varians** Halm. Eden Valley and Lake District. Abundant in greenhouses and amongst foliage in gardens near Carlisle. June.
- Theridion denticulatum** Wlk. Eden Valley and Lake District. Abundant on stone walls near Lodore, Derwentwater. July.
- Theridion pulchellum** Wlk. Eden Valley District. Rose Castle, Dalston. June.
- Theridion lineatum** Clk. (*Phyllonethis lineata* — Spiders of Dorset). Eden Valley and Lake District. Plentiful amongst the foliage of brambles, in whose folded leaves the females construct their pale sea-green egg-cocoon, in the neighbourhood of Carlisle. June and July.
- Theridion lepidum** Wlk. (*Phyllonethis instabilis*—Spiders of Dorset). Lake District. A few specimens only taken from under a large stone on the Tilberthwaite Fells, Coniston, in July 1891.
- Theridion pallens** Blk. Eden Valley. This minute Theridioid is fairly common on the foliage of trees at Wetheral and Carlisle. The curious little white egg-cocoons, like an inverted peg-top, with four small lateral prominences, is fastened by the *broad end* to the surface of the leaves, and not *balanced on the point*, or *hanging by the point*, as represented in several works on spiders. Adult in May and June.
- Steatoda bipunctata** L. Eden Valley District. A few specimens taken in stables in the neighbourhood of Carlisle.
- Pedanostethus lividus** Bl. (*Nerienne livida*—Spiders of Dorset). Abundant under stones throughout Cumberland and the Lake Districts. Adult all through the summer months.

- Pholcomma gibbum** Westr. Cumberland. Solway District. Not common, but taken occasionally amongst dry grass in Solway Moss.
- Tapinopa longidens** Wid. (*Linyphia longidens*—Spiders of Dorset). Eden Valley and Lake District. Common. Elterwater, Talkin Tarn.
- Floronia bucculenta** Clk. (*Linyphia frenata*—Spiders of Dorset). Eden Valley. A few specimens of both sexes in the neighbourhood of Dalston. September 1890.
- Bolyphantes alticeps** Sund. (*Linyphia alticeps*—Spiders of Dorset). Cumberland and Lake District. Adult males; Penrith Beacon and Helvellyn. September 1890.
- Bolyphantes luteolus** Blk. (*Linyphia luteola*—Spiders of Dorset). Lake District and sand-dunes on the coast of Morecambe Bay and near Silloth, Cumberland. Abundant; Helvellyn and Penrith Beacon. September.
- Drapetisca socialis** Sund. (*Linyphia socialis*—Spiders of Dorset). Eden Valley. Fairly common on the rocks overhanging the Eden at Wetheral, and the Irthing at Gilsland. Taken also on pine trees in the neighbourhood of Carlisle.
- Stemonyphantes lineatus** L. (*Linyphia bucculenta*—Spiders of Dorset). Eden Valley and Solway Districts. Not common.
- Linyphia montana** Clk. Eden Valley, Solway, and Lake District. Common on the islands in Lake Derwentwater. June.
- Linyphia clathrata** Sund. Eden Valley. Common in the neighbourhood of Carlisle.
- Linyphia pusilla** Sund. A single male in the neighbourhood of Carlisle. The Gelt, Rev. Hilderic Friend; April.
- Linyphia triangularis** Clk. Common all through the Eden Valley and Lake District.
- Linyphia peltata** Wid. Eden Valley. Common on the foliage of trees. Lake District; Elterwater.
- Linyphia insignis** Bl. Eden Valley. Very common amongst grass on the banks of the Irthing at Gilsland. Adult males and females, Sept. 1889.
- Taranucnus setosus** Cb. (*Linyphia setosa*—Spiders of Dorset). Cumberland. Abundant in Newton Moss, near Penrith.
- Laballa thoracica** Wid. (*Linyphia thoracica*—Spiders of Dorset). Eden Valley. Abundant on overhanging banks and rocks at Wetheral.
- Lepthyphantes nebulosus** Sund. Cumberland. Two specimens only, adult males; Carlisle.

- Lepthyphantes leprosus** Ohl. Cumberland. Common in outhouses near Carlisle.
- Lepthyphantes terricola** C.L.K. (*Linyphia alacris* Bl.—Spiders of Dorset). Eden Valley. Abundant amongst dead leaves at Armathwaite and Wreay, in the neighbourhood of Carlisle. April.
- Lepthyphantes tenuis** Bl. (*Linyphia tenebricola*—Spiders of Dorset). Eden Valley. Abundant amongst grass on the banks of the Irthing at Gilsland. September.
- Lepthyphantes blackwallii** Kulcz. (*Linyphia zebrina*—Spiders of Dorset). Eden Valley. Common amongst grass at Gilsland and in other localities. September.
- Lepthyphantes tenebricola** Wid. Eden Valley. A single adult male of this species, new to the British list, was taken near Armathwaite in 1892. Specimens of the male sex have also been taken in Scotland, but in what particular locality I am unable to state positively (In coll. O.P.C.).
- Lepthyphantes flavipes** Blk. Eden Valley. A few specimens amongst grass in the neighbourhood of Carlisle.
- Lepthyphantes pinicola** Sim. Lake District. Common beneath stones on the slopes of Helvellyn and Croslin Fell (Pennine range). Adult males and females were taken in the former locality for the first time in Great Britain in Sept. 1890.
- Lepthyphantes cristatus** Menge. Eden Valley. Rare. Armathwaite Woods. April.
- Lepthyphantes obscurus** Bl. Eden Valley. A few specimens of both sexes amongst dead leaves at Armathwaite. April.
- Lepthyphantes pallidus** Bl. Eden Valley. Rare. Amongst dead leaves at Armathwaite (April) and Newton Moss, Penrith.
- Lepthyphantes minutus** Bl. Eden Valley. Common, in crannies of the stone walls, in the neighbourhood of Carlisle. August.
- Bathyphantes variegatus** Bl. Lake District. Abundant under stones near Elterwater, but apparently local.
- Bathyphantes concolor** Wid. Cumberland and the Lake District. Common throughout the whole district during the summer months.
- Bathyphantes approximatus** Cb. Cumberland. Abundant in Newton Moss near Penrith, and in the neighbourhood of Carlisle. Adult in October and May.
- Bathyphantes nigrinus** Bl. Cumberland and Lake District. Abundant near Carlisle and in Newton Moss, Penrith, and at Elterwater. Adult in July.

Bathyphantes setiger F.Cb. Cumberland. New to science, 1893. A few adult males and females taken in Newtown Moss, Penrith, in the month of May.

Bathyphantes gracilis Bl. Cumberland. Not uncommon in the neighbourhood of Carlisle. Newtown Moss, Penrith. Adult in July.

Bathyphantes pullatus Cb. Cumberland. A common species in swampy places in the Eden Valley and Solway Districts.

Bathyphantes dorsalis Wid. Cumberland. Abundant on gorse bushes and the foliage of trees in the neighbourhood of Carlisle.

Porrhomma pygmæum Bl. (*Nerience pygmæa*—Spiders of Dorset). Cumberland. Common on railings, in the autumn, near Carlisle.

Porrhomma adipatum L.K. (*Linyphia reticulata*—Spiders of Dorset). Cumberland. A few adults of both sexes, on Penrith Beacon, in September.

Oreoneta niger F. Cb. (*Tmeticus niger* F. Cb. A. & M.N.H. 1891). Adult males and females were taken on Helvellyn in Sept. 1890, beneath stones on the bleak bare summit, 3,118 ft. This species was then new to science.

Tmeticus huthwaitii Cb. (*Nerience huthwaitii*—Spiders of Dorset). Eden Valley and the Lake District. Beneath stones on the shores of the Elterwater, and on the banks of the Eden. June and July.

Tmeticus rufus Wid. (*Nerience rufa*—Spiders of Dorset). Cumberland. Abundant amongst dead leaves at Armathwaite. April.

Tmeticus abnormis Cb. (*Linyphia abnormis*—Spiders of Dorset). Eden Valley, Cumberland. Not uncommon amongst dead leaves in the woods at Armathwaite, near Carlisle.

Centromerus bicolor Bl. (*Linyphia bicolor*—Spiders of Dorset). Eden Valley. Abundant in September and October in the neighbourhood of Carlisle and Gilsland.

Centromerus concinnus Thor. Eden Valley. Not so abundant as the last species, but frequently found in the neighbourhood of Carlisle and Gilsland. A much smaller species than the last and apparently quite distinct; taken at the same season of the year, September and October.

Centromerus expertus Cb. (*Linyphia experta*—Spiders of Dorset). Cumberland. Very rare; a few males and females taken in Newtown Moss, Penrith.

Centromerus sylvaticus Cb. (*Nerience sylvatica*—Spiders of Dorset). Cumberland. Rare. Penrith Beacon.

- Pedina scopiger** Grube. (*Linyphia rufa*—Spiders of Dorset).
Eden Valley and Solway districts. Common amongst herbage on the banks of the Eden and the shores of the Solway, in August and September. Abundant in August 1892 in Newtown Moss, in company with the next species.
- Pedina warburtonii** Cb. Cumberland. Also fairly common, but not so abundant as the last species, in Newtown Moss, Penrith, in August 1892.
- Microneta viaria** Bl. (*Nerienne viaria*—Spiders of Dorset). Eden Valley. In profusion in the spring-time, and in evidence in the adult state at almost any season of the year amongst dead leaves in the woods at Armathwaite, Wreay, etc.
- Microneta decora** Cb. (*Nerienne decora*—Spiders of Dorset). Cumberland. A single adult male in Newtown Moss, Penrith. May.
- Microneta conigera** Cb. (*Neriena conigera*—Spiders of Dorset). Lake District. A single adult male amongst grass on Lingmoor Fells, 1,000 ft., near Elterwater, in June.
- Micryphantes sublimis** Cb. (*Nerienne sublimis*—Spiders of Dorset). Lake District. A very local species, but taken plentifully from under stones on the slopes of Helvellyn, in September 1890.
- Micryphantes fuscipalpis** —.* (*Nerienne fuscipalpis*—Spiders of Dorset). Cumberland. Common in the neighbourhood of Carlisle.
- Erigone dentipalpis** Wid. (*Nerienne dentipalpis* — Spiders of Dorset). Lake District, Solway and Eden Valley. Common.
- Erigone atra** Bl. (*Nerienne atra*—Spiders of Dorset). Lake District, Solway and Eden Valley. Common.
- Tiso vagans** Bl. (*Nerienne vagans*—Spiders of Dorset). A single male taken in the neighbourhood of Carlisle.
- Gongylidium rufipes** Sund. (*Nerienne rufipes*—Spiders of Dorset). Lake Districts. Elterwater.
- Coryphæus distinctus** Sim. (*Coryphæus glabriceps* F.Cb. Ann. & Mag. N.H., 1894). A single adult male taken near Carlisle.
- Kulczskiellum fuscum** Bl.
- Kulczskiellum agreste** Bl. On the shore of Ulleswater. July.
- Kulczskiellum apicatum** Bl. Lake District, Elterwater. June.
- Kulczskiellum retusum** Westr. Newtown Moss, Penrith. May and June.
- Kulczskiellum gibbosum** Bl. Lake District. Elterwater. June.
- Kulczskiellum tuberosum** Bl. Newtown Moss, Penrith, May. Lake District, Elterwater, June.

* The synonymy of this species is not yet cleared up.

Trachygnatha dentata Wid. Solway and Newtown Moss, Penrith.

Gonatium rubens Bl. (*Neriene rubens*—Spiders of Dorset). Eden Valley. Occasionally met with in the neighbourhood of Carlisle. October.

Gonatium isabellinum Bl. (*Neriene isabellina*—Spiders of Dorset). Eden Valley. Not uncommon in the neighbourhood of Carlisle. October.

Gonatium bituberculatum Wid. (*Neriene bituberculata*—Spiders of Dorset). Solway and Eden Valley districts. Abundant in the spring and autumn in Newtown Moss, Penrith. Lake District, Elterwater. Adult in the spring and autumn.

Dicymbium nigrum Bl. (*Neriene nigra*—Spiders of Dorset). Eden Valley. Common amongst grass and herbage in the woods at Armathwaite and Wreay. April.

Dicymbium tibiale Bl. (*Neriene tibiale*—Spiders of Dorset). Eden Valley. Adult males and females of this rare species were taken in the woods near Wreay in April 1891.

Lophomma herbigradum Bl. (*Neriene herbigrada*—Spiders of Dorset). Newtown Moss, Penrith. Males and females. Elterwater. June.

Lophomma punctatum Bl. (*Walckenaëra punctata*—Spiders of Dorset). Newtown Moss, Penrith. Elterwater. June. Males and females.

Tapinocyba subitanea Cb. (*Walckenaëra subitanea*—Spiders of Dorset). Eden Valley. A single adult male near Carlisle.

Tapinocyba beckii Cb. (*Walckenaëra beckii*—Spiders of Dorset). Lake District. Elterwater in June. Males and females, adult.

Wideria antica Wid. (*Walckenaëra antica*—Spiders of Dorset). Lake Districts. Elterwater. Adult males in June.

Plæsiocrærus fuscipes Bl. Eden Valley. Abundant amongst dead leaves at Armathwaite in May and October.

Plæsiocrærus permixtus Cb. Newtown Moss, Penrith. A single male only.

Diplocephalus cristatus Bl. (*Walckenaëra cristata*—Spiders of Dorset). Eden Valley. An adult male taken near Carlisle in February. Rare.

Diplocephalus latifrons Cb. (*Walckenaëra latifrons*—Spiders of Dorset). Eden Valley. Adult males and females were taken in the neighbourhood of Carlisle in February. Rare.

Areoncus humilis Al. (*Walckenaëra humilis*—Spiders of Dorset). Eden Valley. A single adult male occurred on the banks of the Caldew, near Carlisle.

- Savignia frontata** Bl. (*Walckenaëra frontata*—Spiders of Dorset).
Eden Valley. A few males and females near Carlisle in October. Not uncommon.
- Entelecara erythropus** Westr. (*Walckenaëra erythrope*—Spiders of Dorset). Eden Valley. Common on foliage near Carlisle in May and June.
- Entelecara acuminata** Wid. (*Walckenaëra altifrons*—Spiders of Dorset). Eden Valley. A few adult males from the neighbourhood of Carlisle. Rare. May and June.
- Entelecara trifrons** Cb. (*Walckenaëra trifrons*—Spiders of Dorset). Eden Valley and Newtown Moss, Penrith.
- Minyriolus pusillus** Wid. (*Walckenaëra pusilla*—Spiders of Dorset). Cumberland. Newtown Moss, Penrith.
- Lophocarenum mengei** Sim. Lake District. A few males and females of this species, at that time new to the British list, were taken on a low, swampy island in the middle of Lake Elterwater, in July 1891.
- Brachycentrum nemorale** Bl. (*Walckenaëra nemoralis*—Spiders of Dorset). Eden Valley. Armathwaite. April.
- Pocadicnemis pumila** Bl. (*Walckenaëra pumila*—Spiders of Dorset). Eden Valley and in Newton Moss, Penrith.
- Nematogmus obscurus** Bl. (*Walckenaëra obscura*—Spiders of Dorset). Eden Valley. Amongst dead leaves in the Armathwaite Woods. Very rare. April.
- Wideria melanocephala** Cb. (*Walckenaëra melanocephala*—Spiders of Dorset). Lake District. Elterwater; adult female. June.
- Cornicularia cuspidata** Bl. (*Walckenaëra cuspidata*—Spiders of Dorset). Newtown Moss, Penrith; adult males and females. May.
- Cornicularia clara** Cb. (*Nerienne clara*—Spiders of Dorset). Females, adult. Amongst dead leaves in the woods at Wreay. April.
- Walckenaëra acuminata** Bl. Eden Valley. Abundant amongst grass, on the banks of the Irthing, near Gilsland. Males and females, adult in September. Mr. Thomas Postgate.
- Maso sundevallii** Westr. (*Nerienne sundevallii*—Spiders of Dorset.) Newtown Moss, Penrith.
- Ceratinella scabrosa** Cb. (*Walckenaëra scabrosa*—Spiders of Dorset). Newtown Moss, Penrith.
- Ceratinella brevipes** Westr. (*Walckenaëra brevipes*—Spiders of Dorset). Solway district.

Fam. EPEIRIDÆ.

Pachygnatha clerkii Sund. Solway, Eden Valley, and Lake District. Abundant amongst grass on the shores of the Solway in the adult state in September.

Pachygnatha degeerii Sund. Eden Valley and Lake District. Abundant.

Pachygnatha listeri Sund. Eden Valley. Rare. A few specimens of the female sex amongst dead leaves at Armathwaite. April.

Tetragnatha pinicola L.K. Solway Moss. A single adult male of this small species was taken on some shrubs of sweet-gale. Out of the five species of *Tetragnatha* recorded from the British Islands, one only has been found in the Lakes. The apparent scarcity of members of this genus is due probably in a great measure to lack of careful and diligent collecting.

Meta merianæ Scop. Eden Valley. Abundant in cellars at Rockcliffe; and also under all the overhanging rocks and steep damp banks throughout the district. Wetheral, Carlisle, etc.

Meta segmentata Clk. Eden Valley, Solway, and Lake Districts. Abundant everywhere.

Zilla atrica C.L.K. Eden Valley and Lake District. Abundant on hedges and shrubs in the neighbourhood of Carlisle, and often side by side with the next species. Adult males and females were taken on the Roman wall, far away in the Fells, apart from foliage of any kind. Occurs plentifully on the stone walls throughout the Lake District; Elterwater, etc. June and July.

Zilla x-notata Clk. Eden Valley and Lake District. Abundant on the iron and stone bridges over the rivers Eden, Caldew, Irthing, etc.; and in the Lake District. June and July.

Epeira quadrata Clk. Eden Valley and heather districts. This fine species, the 'bee-catching' spider, is abundant in October on a heathy common, Kingmoor, near Carlisle. The northern form, so far as I have had opportunities of observing it, is smaller than our southern race. Males and females are adult in October.

Epeira redii Scop. (*Epeira solers*—Spiders of Dorset). Lake District. Tilberthwaite and Coniston Fells. Probably occurring throughout the heather districts. June and July.

Epeira umbratica Clk. Eden Valley. I have not met with this species in any abundance, but have taken a few specimens near Gilsland.

Epeira diademata Clk. Eden Valley, Solway and Lake District. A very dark variety is abundant on the dark black lichen-covered rocks lying amongst the gloomy heather-clad fells throughout Cumberland. October.

Epeira cornuta Clk. Lake District. Not as common as one might have expected. Its place seems to be taken in the neighbourhood of Carlisle and part of the Lake District by the next species. I believe that experience will show it to be more plentiful in the heather districts, such as Croglin Fells, Tilberthwaite, etc., where the grouse-heather covers the fell sides, while *E. patagiata* occupies the richer river-valley districts. This is, however, only surmise, based upon a few disconnected observations, and will need confirmation, or the contrary. Common on Watendlath Fells, Borrowdale. July.

Epeira patagiata Clk. Eden Valley, Solway and Lake District. This handsome, and, in some parts of the country, rare species is found apparently throughout Cumberland and the Lake District. It occurs abundantly on hedges and in gardens in the neighbourhood of Carlisle; on gorse-bushes along the banks of the Eden, at Armathwaite, and on the Solway, near Rockcliffe. It is also found plentifully on the shores of the Derwentwater, on palings and stone walls, in the neighbourhood of the famous Lodore Falls. Adult in May and again in September.

Epeira cucurbitina Clk. Eden Valley district. Common in the neighbourhood of Carlisle. June and July.

Fam. THOMISIDÆ.

Xysticus erraticus Bl. A single adult male in Newtown Moss, near Penrith. May.

Xysticus cristatus Clk. Common throughout the whole district in the summer months.

Philodromus aureolus. A few specimens in the Eden Valley district.

Tibellus oblongus Wlk. Newtown Moss, Penrith, and amongst grass on the shores of the Solway. Adult males and females in May.

Thanatus striatus C.L.K. (*Thanatus hirsutus*—Spiders of Dorset). Newtown Moss, Penrith. May.

Fam. CLUBIONIDÆ.

Clubiona reclusa Cb. Lake District. Abundant in June. Amongst the foliage of trees, shrubs, and plants (the meadow-sweet especially) on the shores of Lake Elterwater and in other localities throughout the district. June.

Clubiona compta Bl. Eden Valley, Gilsland, and Carlisle. Not common. Lake District; Elterwater. June.

Clubiona pallidula Clerck. (*Clubiona epimelas*—Spiders of Dorset). Lake District. Fairly common on low shrubs along the wooded margins of Lake Elterwater. June.

Clubiona phragmitis C.L.K. (*Clubiona holosericea*—Spiders of Dorset). Solway districts and at Newtown Moss, Penrith. Abundant. May and June.

Clubiona terrestris Westr. Eden Valley District. Not uncommon.

Clubiona stagnatilis Kulcz. (*C. grisea*—Spiders of Dorset.) Solway District and at Newtown Moss, Penrith.

Chiracanthium erraticum Walck. Eden Valley District. Not uncommon upon brambles in the neighbourhood of Carlisle.

Anyphæna accentuata Walck. Eden Valley District. Not uncommon on foliage.

Agrœca brunnea Bl. Eden Valley District. Rare.

Agrœca celans Bl. Eden Valley. Very rare; a few adult females only, amongst moss in the woods at Wreay in April.

Micariosoma festivum C.L.K. Eden Valley District. Rare.

Zora maculata Bl. (*Hecaërge maculata*—Spiders of Dorset). Eden Valley District. Common.

Fam. AGELENIDÆ.

Cryphœca sylvicola Bl. Lake District. Common beneath stones, on and about the walls, all through Cumberland.

Cryphœca diversa Cb. Eden Valley. A single adult female, then new to science, was taken on the banks of the Caldew in October 1892.

Argyroneta aquatica Bl. Newtown Moss, Penrith, and Eden Valley District, near Carlisle. Rev. Hilderic Friend.

Cœlotes atropos Walck. Carlisle and Lake District. One of the most abundant spiders of the north country. Under logs of wood, in stone walls, and beneath stones all round Carlisle and on the Fells up to 2,000 ft., this species may be found; its white sheet of webbing being conspicuous on the surface of the ground or stone wall. A long tube runs beneath the stone or log, and both male and female can be found living together at the end; while later, the young spiders will be found spending the early days of their childhood with their mother. Adult in June.

Textrix denticulata Oliv. Eden Valley and Lake District. Abundant, under stones on the walls, throughout the Carlisle district and Fell countries.

Tegenaria domestica Clk. (*T. derhamii*—Spiders of Dorset.) Eden Valley. Carlisle and Rockcliffe.

Tegenaria campestris C.L.K. Lake District. Derwentwater; June.

Hahnia montana Bl. Lake District. Elterwater; June.

Hahnia elegans Bl. Newtown Moss, Penrith. Females; June.

Hahnia helveola Sim. Lake District. Elterwater. Females; June.

Fam. LYCOSIDÆ.

Pisaura mirabilis Clk. (*Ocyale mirabilis*—Spiders of Dorset). Eden Valley, Solway and Lake District. Common. June and July.

Pirata piraticus Clk. Lake District. Elterwater and Newtown Moss, Penrith. Both sexes, adult; June.

Pirata hygrophilus Thor. Newtown Moss, Penrith. Males and females, adult; June.

Pirata latitans Blk. Newtown Moss, Penrith. June. Both sexes, adult.

Lycosa accentuata Latr. (*Tarentula andrenivora*—Spiders of Dorset). Lake District. Ulleswater; Glenridding. Helvellyn. Elterwater. Borrowdale. June.

Lycosa pulverulenta Clk. Lake District. Ulleswater and Borrowdale. June.

Lycosa cuneata Clk. Lake District. Elterwater. June. Adult male and female.

Lycosa ruricola Degr. (*Trochosa ruricola*—Spiders of Dorset). Lake District. Elterwater. Males and females; June. Common.

Lycosa terricola Thor. Lake District and Eden Valley. Elterwater; and Armathwaite woods, amongst dead leaves. Males and females adult. June.

Lycosa spinipalpis F. Cb. Lake District. A single pair, male and female, adult, were taken together, from beneath a stone at the head of Lake Derwentwater, near Lodore, in May 1893. This species is new to science and is one of the finest of recent additions to the British List. Several specimens of both sexes, adult, were taken in Dorset, under boards and hatch-doors lying in the meadows in May 1894.

The species is described and figured for the first time in the Annals and Magazine of Natural History for January 1895.

Pardosa monticola Clk. (*Lycosa monticola*—Spiders of Dorset).
Lake District and Solway. Langdale Pikes and Borrowdale.
Bowness Moss and Rockcliffe Marsh. May and June.

Pardosa palustris L. Lake District and Solway. May
and June.

Pardosa purbeckensis F. Cb. Solway. Males and females,
adult. May. This species was first recognised as new to
science in the summer of the year 1894, when great numbers
were taken on the shores of Poole Harbour, Dorset, in May.
It is described and figured in A. & M.N.H. for January 1895.

Pardosa agricola Thor. Eden Valley and Lake District.
A very common species on the sandy or pebbly margins of the
streams in Cumberland, the Eden near Carlisle, and the Caldew
at Dalston. It literally swarmed, in the adult state, on the
margin of Lake Derwentwater, on a stretch of sand near the
disused quarry, opposite Lodore. May and June. This is
essentially a mountain region species.

Pardosa amentata Clk. Lake District. Common in May and
June.

Pardosa traillii Cb. Lake District. This fine species is common
in May and June, running amongst the screes or loose stones
on the Styhead Pass and at the foot of Great Gable. It was
taken in England for the first time, on Styhead Pass, in June
1893, and recorded in A. & M.N.H. for January 1894, having
previously occurred in Scotland only.

Pardosa annulata Thor. Lake District. Elterwater. Not
common.

Pardosa pullata Clk. Eden Valley; Solway and Lake District.
Abundant everywhere.

Pardosa nigriceps Thor. Lake District. Occurs throughout
the heather-regions of the Fell and Lake country. June.

Pardosa lugubris Wlk. Eden Valley. Very abundant amongst
the dead leaves in the woods around Armathwaite and Wreay
in April.

Fam. ATTIDÆ.

Epiblemum scenicum Clk. Eden Valley. Not common; walls
of houses, Carlisle. June.

Euophrys erratica Walck. Lake District. Common on the
stone walls, lurking beneath the coping-stones, throughout the
Fell country of Cumberland and the Lake District. Gilsland.
Rev. Hilderic Friend. June.

Euophrys frontalis Walck. Newtown Moss, near Penrith. Not common. May.

Neon reticulatus Blk. Newtown Moss, near Penrith. Rare. May.

Dendryphantes hastatus C.L.K. Three adult females at Newtown Moss, Penrith. A rare species. May.

Total, 187 species, of which 10 are new to the British List, and 5 new to Science.

APPENDIX.

The following species, thirty-one (31) in number, have been taken on the eastern side of the Pennine chain, and are recorded in 'A List of Berwickshire and Northumberland Spiders,' 1875.

None of them have, as far as I am aware, been taken in Cumberland and the Lake District, though there is little doubt but that most of them will be found, in suitable localities on the western side of the Pennines, sooner or later.

Prothesima petiverii —. Female, immature, Wooler.

Prothesima nigrita —. Female, adult and immature, Wooler, Cheviot.

Erigone graminicola Sund. (*Nerience graminicola*—Spiders of Dorset). Females, adult, Wooler.

Dicyphus cornutus Bl. (*Nerience cornuta*—Spiders of Dorset). Male, adult, Wooler.

Nerience (?) curtipes Cb. Male, adult, Langley Ford.

Nerience (?) pavitans Cb. Female, adult, Cheviot.

Nerience (?) morula Cb. Female, adult, Cheviot.

Dismodicus bifrons Cb. (*Walckenaëra bifrons*—Spiders of Dorset). Male, adult, Cheviot.

Cornicularia unicornis Cb. (*Walckenaëra unicornis*—Spiders of Dorset). Males, adult, Cold Martin Moss.

Wideria nodosa Cb. (*Walckenaëra nodosa*—Spiders of Dorset). Male, adult, Cold Martin Moss.

Hilaira uncata Cb. (*Nerience uncata*—Spiders of Dorset). Males and females, adult, Wooler.

Hilaira excisa Cb. Males and females, adult, Wooler.

Porrhomma microphthalmum Cb. (*Linyphia decens*—'List of Berwickshire and Northumberland Spiders.') Female, adult, Cheviot.

Tmeticus prudens Cb. (*Nerience prudens*—Spiders of Dorset). Males and females, adult, Cheviot, Wooler.

Tmeticus arcanus Cb. (*Linyphia arcana*—Spiders of Dorset).
Male, adult, Cheviot.

Tmeticus (?) contritus Cb. (*Linyphia contrita*—Spiders of Dorset).
Male, adult, Cheviot.

Lepthyphantes angulatus Cb. (*Linyphia angulipalpis*—‘List of Berwickshire and Northumberland Spiders’; *Linyphia angulata*—Spiders of Dorset). Male, adult, Cheviot.

Linyphia hortensis Sund. Males and females, immature, Wooler.

Tetragnatha extensa L. Males and females, immature.
Wooler.

Micaria pulicaria Sund. Male and female, adult, Wooler.

Clubiona trivialis C.K. Male, adult, Wooler.

Clubiona pallens C.K. Females, adult, Wooler. Male, adult.
Cheviot.

Xysticus viaticus C.L.K. Females, adult, Wooler.

Xysticus lanio C.L.K. Female, adult, Cheviot.

Oxyptila atomaria Panz. Male, adult, Cold Martin Moss.

Oxyptila trux Bl. Males and females, adult, Wooler.

Philodromus cespiticollis Walck. Males and females, adult,
Wooler.

Lycosa cinerea Fabr. (*Trochosa cinerea*—Spiders of Dorset).
Male, adult, and female, immature, Wooler.

Lycosa picta Hahn. (*Trochosa picta*—Spiders of Dorset). Males
and females, adult, Wooler.

Pardosa herbigrada Bl. (*Lycosa herbigrada*—Spiders of Dorset).
Male, adult, Wooler.

Hasarius falcatus Clerck. (*Attus falcatus*—‘List of Berwickshire
and Northumberland Spiders’). Male and female, adult, Wooler.

NOTE.—It is somewhat singular that neither *Lycosa cinerea* Fabr. nor *Linyphia marginata* C.K., both of them belonging more especially to mountain districts, should have been taken in the Lake District. It may be that they are local; at any rate I have explored every locality which seemed to be at all likely, but hitherto without success. The former species occurs in North Wales and at Wooler, Northumberland; the latter on the shores of Loch Katrine, Scotland.

In conclusion, I need scarcely remind readers of ‘The Naturalist’ that there are very few workers in this branch of natural history, or add that I shall always be most happy to examine and name collections of spiders, which are accompanied by a stamped and addressed label.—F.O.P.C., Swanage, Dec. 1894.

BIBLIOGRAPHY:

Papers and Records published with respect to the Natural History and Physical Features of the North of England.

ORTHOPTERA, 1884 to 1892.

THE present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

The counties and vice-counties of which we take cognizance in these references are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S.; 54, Lincoln N.; 56, Notts.; 57, Derby; 58, Cheshire; 59, Lancashire S.; 60, Lancashire W.; 61, York S.E.; 62, York N.E.; 63, York S.W.; 64, York Mid-W.; 65, York N.W.; 66, Durham; 67, Northumberland S.; 68, Cheviotland; 69, Westmorland with Furness; 70, Cumberland; 71, Isle of Man.

ANON. [not signed].

York S.W.

Calder-Vale Words [as used from Wakefield upwards: Earwig = Saxon Eorth-wigga, earth-insect, though the common notion is that these Twinges cause death by entering a person's ear (*Forficula auricularia*)]. Yorksh. Folk-Lore Journ., Part 7, April 1887, p. 114.

ANON. [not signed].

Northumberland.

List of . . . Donations to the Museum . . . of the Natural History Society [of Newcastle-on-Tyne], from June 1877 to August 1887 [1880, Locusts (species not stated) taken at Tynemouth, Sep. 1880 (Wm. Daglish), and at Warkworth, Sep. 1880 (Rev. J. W. Dunn)]. Nat. Hist. Trans. Northumberland, Durham, and Newcastle, vol. 9, part 2, 1888, p. 286.

JOSEPH CHAPPELL.

Lanc. S.

Obnoxious and Injurious Insects [*Blatta orientalis*, *B. germanica*, *B. americana*, *Acheta domestica* and their occurrence in Lancashire]. Young Nat., April 1889, pp. 61-63.

H. SHORTRIDGE CLARKE.

Isle of Man.

Report of the Entomological Section [of the Isle of Man N. H. Society for 1888; repeats Porritt's record of *Stenobothrus viridulus*, *S. bicolor*, and *Forficula auricularia*]. Yn Lioar Manninagh, April 1888, p. 63.

York Mid W.

W. EAGLE CLARKE, W. DENISON ROEBUCK, and WILLIAM STOREY.

Upper Nidderdale and its Fauna . . . Orthoptera [local name for *Forficula anricularia* given]. Nat., July 1886, p. 211.

C. W. DALE.

Durham, Yorkshire, Lanc. S.

Our British Orthoptera [*Anisolabis maritima* Bonelli, taken numerously at South Shields in 1856 (T. J. Bold); *Ectobia germanica* L., *Blatta americana* L., and *Blaberus giganteus* L., all at Liverpool; and *Xiphidium dorsale* Latr., Yorkshire]. Young Nat., Dec. 1886, p. 237-243.

HILDERIC FRIEND.

Cumberland?

The American Cockroach [(*Periplaneta americana*?) abounds in a conservatory, presumably near Carlisle]. Sci. Goss., August 1890, p. 177.

A. E. HALL.

York S.W.

[Orthopteron observed by] the Yorkshire Naturalists' Union in Edlington and Wadworth Woods [near Doncaster, 16th and 17th Sep. 1891; *Meconema varia*]. Nat., Nov. 1891, p. 335.

WILLIAM HEWETT.

York S.E.

[*Forficula auricularia* observed at sugar by] the Yorkshire Naturalists' Union at Pocklington [Sep. 6th and 7th, 1893]. Nat., Feb. 1894, p. 64.

J. ISMAY.

York S.W.

Extracts from 'the Diary of the Rev. J. Ismay [of Mirfield; 1748, Locusts in Mirfield and other parts of this kingdom; 1755, multitudes of earwigs (*Forficula auricularia*) about the houses in Mirfield and other places; a very wet and cold summer, harvest and autumn]. Yorksh. Notes and Queries, No. 10, Jan. 1888, p. 198.

H. WALLIS KEW.

Linc. N.

Field Notes, No. 5. Old Chalk-pits [near Louth; mention made of Earwigs (*Forficula auricularia*) at Raithby, and 'Bush-squeakers' (*Thamnotrizon cinereus*) near Burwell Pasture; habits of latter described)]. Nat. World, May 1886, pp. 81.

H. WALLIS KEW.

Linc. N.

Some Lincolnshire Orthoptera [giving localities for *Stenobothrus viridulus* L., *S. bicolor* Charp., *S. elegans* Charp., *Gomphocerus maculatus* Thunb., *Tettix bipunctatus* L., *Thamnotrizon cinereus* L., and *Platycleis ræsliei* Hagenb., all named by Eland Shaw]. Nat., Jan. 1889, p. 5.

JAMES EARDLEY MASON.

York N.W.

The Yorkshire Naturalists' Union in Upper Teesdale [in August 1889; *Forficula auricularia* noted]. Nat., Sep. 1889, p. 283.

L. C. MIALl and ALFRED DENNY.

York Mid W. and S.W.

The Natural History of the Cockroach (*Periplaneta orientalis*) noting that a baker's shop in Leeds is infested by *Blatta germanica*, supposed imported by soldiers returned from the Crimea, and that *Periplaneta americana* frequents one single warehouse in Bradford]. Sci. Goss., March 1884, p. 60.

L. C. MIALl and ALFRED DENNY.

York Mid W. and S.W.

Studies in Comparative Anatomy. — III. — The Structure and Life-History of the Cockroach (*Periplaneta orientalis*). An Introduction to the Study of Insects. [In Chapter III., devoted to the 'Natural History of the Cockroach,' it is stated, at p. 19, that in Leeds one baker's shop is infested by *Blatta germanica*, which is believed to have been brought by soldiers to the barracks, after the Crimean War, and to have been carried to the baker's in bread-baskets; and that *Periplaneta americana* frequents one single warehouse in Bradford, and is similarly local in other towns with foreign trade]. 8vo, cloth, pp. 224, with illustrations. London, 1886.

GEO. T. PORRITT.

Yorkshire.

Yorkshire Neuroptera and Orthoptera [being an appeal for assistance in the study, with an ultimate view of preparing a county-list]. Nat., June 1887, p. 180.

GEORGE T. PORRITT.

Isle of Man.

[Orthoptera noted on] an Entomological Expedition to . . . the Isle of Man [in August 1887; *Stenobothrus viridulus*, *S. bicolor*, and *Forficula auricularia*]. Nat., April 1888, p. 107.

GEO. T. PORRITT.

York S.W.

. . . Orthoptera near Thorne Waste [16th July, 1891; *Stenobothrus parallelus* in plenty]. Nat., April 1891, p. 118.

G. T. PORRITT.

York S.E.

[*Stenobothrus viridulus*, common, observed at York Dale and Sledmere, 3rd August, 1891, by] the Yorkshire Naturalists' Union on the Wolds. Nat., October 1891, p. 303.

GEORGE ROBERTS.

Yorkshire.

Topography and Natural History of Lofthouse and its Neighbourhood [etc.]. Vol. II. Leeds: printed for the author. 1885 [viii. + 258 pages, 8vo; references to 'grasshoppers' (species not stated) at pages 27 and 174].

ELAND SHAW.

Durham.

Anisolabis maritima, Bonelli [and its capture in numbers at South Shields, Sep. 1856; suggestion that it be re-searched for]. E.M.M., October 1886, p. 108.

ELAND SHAW.

Linc. N.

Pachytylus migratorius, Linné, in Lincolnshire [at Withern, near Louth]. E.M.M., Nov. 1886, p. 140.

ELAND SHAW.

Linc. N.

Occurrence of the true Migratory Locust [*Pachytylus migratorius*] in Lincolnshire [at Withern near Louth, female, Oct. 1886]. Nat., Nov. 1886, p. 348.

Durham, Linc. N., York S.E.,
Mid W., S.W. and N.E.

ELAND SHAW.

Synopsis of the British Orthoptera [a valuable paper, containing a few North of England records: repetition of Bold's 1856 record of *Anisolabis maritima* Bonelli, at South Shields]. E.M.M., August 1889, p. 357. [Description of a var. of *Stenobothrus viridulus* L. from Louth (Wallis Kew), and note that Porritt has taken *S. rufipes* Zett. near York, *S. elegans* Charp., Mablethorpe, *Gomphocerus maculatus* Thunb., Lincolnshire (Kew), Yorkshire (Porritt)]. E.M.M., Oct. and Nov. 1889, pp. 409-421. [The Spurn examples of 1876 referred to *Pachytylus cinerascens* and a Leeds one and a Withern, Lincs., 1886 example to *P. migratorius*; *Schistocerca peregrina* at Burton-on-Trent and (possibly) Yorkshire in 1869]. E.M.M., Dec. 1889, pp. 450-455. [*Meconema varium* Fab. recorded as from Edlington Wood near Doncaster (Porritt), and *Thamnotrizon cinereus* L. from Lincolnshire (Wallis Kew)]. E.M.M., Feb. and March, 1890, pp. 60 and 64. [*Platycleis brachyptera* L., found on Strensall Common by Mr. Porritt; *Pl. roeselii* Hag., Trusthorpe, Lincs., August 1888, H. Wallis Kew]. E.M.M., April 1890, pp. 95-96.

ELAND SHAW.

Linc. N.

Tettix bipunctatus hibernating [one taken in Greenfield Wood near Alford by Ed. Woodthorpe, on 22nd March, 1890]. E.M.M., May 1890, p. 141.

NOTES—BOTANY.

Sheffield Botany: Erratum.—I notice an inaccuracy in Mr. Snelgrove's and my paper ('Naturalist,' Jan. 1895, p. 8), due, I fear, to a slip in the MS. The phrase 'D. Common in bogs on the moors (T.G.),' correctly inserted in lines 9 and 10, under *Viola palustris*, has been by an obvious 'lapsus' repeated under the following species, *Viola hirta*.—THOS. GIBBS, 7, St. Paul's Street W., Burton-on-Trent, January 22nd, 1895.

Stellaria aquatica and S. nemorum in Cumberland.—With reference to Mr. L. Petty's remarks in the October issue of 'The Naturalist' (see page 292), as to the existence of these two species in Cumberland, I beg briefly to say that the former is unknown in any part of this county up to the present date. *S. nemorum*, on the other hand, is well represented in many places; and this is especially noticeable in the district where the present writer was born, on the banks of the Roe or Raugh rivulet, about seven miles from Carlisle, southward. From the subjoined list of recorded stations, Mr. Petty will note that none of them is to be found south of the Derwent river, which empties into the Solway at Workington, with the solitary exception of the Moorside Hall station in Lamplugh (W. Dickinson). The most northerly station is Birdoswald, near Gilsland, on the line of the old Roman Wall from the Solway to the Tyne. This is succeeded by Wetheral on the Eden, where in woods near The Folly 'it grows in heaps' (Rev. H. Friend); Whitrigg on the Wampool, and Rickerby near Carlisle; wooded ravine at High Head Castle on the Ivebrook above its junction with the Roe. Lower down the latter stream it is found in Skiprigg and Windy Hill Woods, and in an old orchard at Flatbank near Gatesgill, in profusion; about many little brooks in Watermillock parish on Ullswater; woods above Lodore and Grange in Borrowdale (C. Bailey). I may add that *S. uliginosa* is quite of common occurrence all over Cumberland.—WM. HODGSON, Workington, Oct. 4th, 1894.

Feb. 1895.

NOTES—COLEOPTERA.

Recent Captures of Geodephaga on the Moors of East Yorkshire.—During the past summer I have frequently ridden across the mass of moorland which lies between Troutsdale and the Vale of Pickering. I always took a collecting-bottle in my pocket, and frequently turned my eyes to the sandy track I was traversing. By this means I have met with four very interesting species of Geodephaga running on the sand—one example of each:—

Pterostichus lepidus Fab. This fine species has not, to my knowledge, been previously taken in Yorkshire. I took it on Sawdon Moor, June 15th, 1894.

Pterostichus æthiops Pz. This has been taken in the mountainous parts of West Yorkshire, not, I believe, in the eastern half of the county; indeed, the region is hardly of a character to lead one to look for such a thoroughly Alpine species. I took one specimen in the summer on Hutton Buscel Moor.

Carabus arvensis Fab. Not new to Yorkshire, but seldom recorded. Always called a spring insect, but I took a fine example on a wet October day, as it was devouring a worm, close to the 'moor dyke.'

Amara communis Gyll. I took a small black *Amara* on the moor in July, which looks at first sight like *A. curta*, but Canon Fowler thinks it must be an unusual variety of *A. communis*.

W. C. HEY, Derwent House, West Ayton, York, Jan. 3rd, 1895.

Monochammus sartor in Yorkshire.—Mr. Crowther's interesting note ('Naturalist,' Jan. 1895, p. 22) of the occurrence of *M. sutor* L. at Leeds, reminded me of a *Monochammus* which I saw some years ago in Doncaster, in the collection of Mr. Paterson. My note on the species, made at the time, is as follows:— 'A fine male *M. sartor* F. in Mr. Paterson's collection. Taken by the joiners in the Plant works while sawing up timber. Circa 1885.' Its owner was then and, to the best of my knowledge, is still employed at the G.N.R. Plant, and being an ardent naturalist, secured the specimen. Unfortunately he was not a coleopterist, and the specimen, although a remarkably fine one, was pinned through the scutellum with a large household pin, thus making it impossible to appreciate the chief distinction between *M. sartor* F. and *M. sutor* L. In naming it *M. sartor* F. the only thing left as a criterion, i.e., its comparative size, being an unsafe guide, I did so with hesitation. This much, however, may be taken for certain—that a *Monochammus* was taken in Doncaster some ten years ago; that it is uncertain whether it is *M. sutor* L. or *M. sartor* F., but that more probably it is the latter.—E. G. BAYFORD, 20, Eldon Street, Barnsley, January 5th, 1895.

Monohammus sutor and other Timber-imported Beetles at Hartlepool.—Referring to Mr. Crowther's note (Naturalist, Jan. 1895, p. 22), of the occurrence of a specimen of *Monohammus sutor* in Leeds, it may be of general interest to mention that this beetle is by no means of rare occurrence on our quay sides at Hartlepool, where it is imported in the enormous quantity of pit props landed here every year. This timber is sent to all the pit districts of Yorkshire and Lancashire, as well as to the collieries in Northumberland and Durham; hence it is not at all strange to anyone who knows the manner of their introduction and distribution to read reports of the occurrence of rare British species from so many different places in the kingdom. I have also in my cabinet two specimens of the much rarer beetle *Monohammus sartor* and full series of *Acanthocinus ædilis*, *Saperda scabris*, *Pogonocherus fasciculatus*, *Molorchus minor*, and several species not yet recorded as British and not yet named, all taken here at Hartlepool.—J. GARDNER, Hartlepool, 14th January, 1895.

NOTE—HYMENOPTERA.

Sirex juvencus at Hartlepool.—Another insect very common at Hartlepool is *Sirex juvencus*, which is much commoner than its larger brother *S. gigas*; the numerous records of this insect from all parts of the country during the last few years, and to which my note on *Monohammus sutor* more especially referred, must have been noticed by every reader of our entomological magazines. There is little doubt whatever that ninety-nine out of every hundred were imported and distributed in the way I have mentioned in connection with *Monohammus sutor*, for it must be taken into account that large quantities of pit props are imported into other ports as well as Hartlepool, notably Cardiff.—J. GARDNER, Jan. 14th.

Naturalist,

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?) - 1893.

LISTER PETT ,
Ulverston.

FIFTH PAPER.

Radiola linoides Gmel. *R. Millegrana* L. Clarke's First Record, 1632.

1837. Baxter, Phænog. Bot. vol. iii., 188. Near Coniston, Miss Susan Beever.

Linum catharticum L. C.F.R., 1629.

1864. Linton, Lake Country, 320. Common, no locality.

1874. J. of B., Miss E. Hodgson. No locality.

Linum usitatissimum L.

1874. J. of B., Miss E. Hodgson. Road-sides, but not frequent.

1885. Baker's Flora, 53. Newland and Horrace Farm, Ulverston, Miss E. Hodgson.

Geranium sanguineum L. C.F.R., 1634.

1787. Withering, ed. ii., 734. Roosebeck, T. J. Woodward.¹

1796. Withering, ed. iii., 600-601. Walney Island, Atkinson.

Woodward repeats, and repeated in 1801. Withering, ed. iv.,

587. 1805. West, Antiq., ed. Close, 377, A. and W. repeated.

1805. Turner and Dillwyn, ii., 371. Woodward only. 1812.

Withering, ed. v., 741. 1818. Withering, ed. vi., 795. 1830. Withering,

ed. vii., 800. 1835. Watson, New Bot. Guide, i., 300. Woodward, but

ascribed to 'B. G.' 1842. Evans, Furness and F. Abbey, 25.

1843. Jopling, F. and C. 261. Woodward and Atkinson's

localities repeated, and 'Old Park Wood, Holker, Wilson.'

1846. Phytologist, 430. 'In immense beds in Walney Island,'

W. Borrer.² 1857. Phytologist, 257. Humphrey Head, Dr. Windsor.

1860. Phytologist, 258. Dr. Windsor repeated. 1861. Phytologist,

237. Top of Humphrey Head, Western edge, C. J. Ashfield, and

on page 259, Dr. Windsor repeated. 1864. Naturalist, 39. Humphrey

Head, sparingly ; Leo. H. Grindon. 1869. Aspland's Guide.

Within six miles of Grange, A. Mason. 1874. J. of B., Miss E.

Hodgson. No locality. 1885. Baker's Flora, 63. Walney Island,

Humphrey Head. 1890-93. The Grange Guides.

¹ Woodward. See Britten and Boulger's 'Index,' p. 186.

² Borrer. See Britten and Boulger's 'Index,' pp. 19-20, and the references there given.

Geranium Lancastriense With. *Ger. hæmatodes flore eleganter variegato.*

1688. Ray. Fasc., 9. In insula Walney, solo arenoso ad maris litus copiosissime. Proveniens observavit D. Lawson. **1690.** Ray, Syn. ed. i., 156. In insula Walney Lancastriæ adjacente, solo arenoso ad maris litus invenit D. Lawson. **1693.** Ray, Hist., 1061. The above repeated, and 'et D. Newton ostendit.' At end of preface is this, after the name 'Hanc speciem pro varietate Geranii hæmatodis vulgaris in Hist., 1061, habuimus, at nunc, ex observatione plantæ in horto cultæ melius edocti, diversam agnoscimus; non enim floris duntaxat variegatione quam etiam culta retinet, sed et parvitate sua et humilitate, aliisque accidentibus ab eo differet.' The locality repeated in **1695.** Camden, ed. Gibson, 803. **1696.** Ray, Syn. ed. ii., 219. **1709.** Robinson, Nat. Hist. W. and C., 92. **1714.** Petiver, Phil. Trans., 53, mentions Lawson as the discoverer. **1718.** Derham, Phil. Let., 217. Lawson's letter to Ray in 1688. 'Thousands hereof have I found in the Isle of Walney,' Lawson. **1724.** Ray, Syn. ed. iii., 360. **1732.** Dillen, Hortus. Eltham, i., 164-5, tab. 136. **1744.** Wilson, Syn. 245. **1762.** Hudson, Fl. Ang. ed. i., 267, as *G. sanguineum* γ. **1776.** Withering, ed. i., 426, as *G. Lancastriense*. **1778.** Hudson, ed. ii., 305-6. **1787.** Withering, ed. ii., 734. **1789.** Camden, ed. Gough, 145. **1796.** Withering, ed. iii., 601. 'Intermixed with *G. sanguineum* on Walney Island,' Atkinson. **1799.** Hull, Flora i., 152, and **1808**, ed. ii., 204. **1800.** Smith, Fl. Brit. ii., 738-9. **1801.** Withering, ed. iv., 588. Atkinson repeated. **1805.** West, Antiq. ed. Close, 378. Atkinson repeated. **1805.** Turner and Dillwyn, ii., 371. 'On the sandy coast of the Isle of Walney, Hudson.' **1807.** Miller, ed. Martyn i., pt. 2. **1812.** Withering, ed. v., 741, as before, and **1818**, ed. vi., 792. 'Walney, Ray.' **1828.** Smith, Eng. Flora, ed. ii., iii., 243. **1830.** Withering, ed. vii., as in earlier eds. **1835.** Watson, New Bot. Guide, i., 300, ascribed to 'B.G.' **1838.** Sowerby, Eng. Bot., ed. 2, vol. v., 111. **1842.** Babington, Man., ed. i., 61, as *prostratum* Lindl.; locality repeated. **1842.** Evans, Furness and F. Abbey, 25. **1843.** Jopling, Furness and Cartmel, 261; locality repeated. **1846.** Phytologist, 430; 'in moderate plenty in immense beds of *G. sanguineum*, of which it appears to be a mere variety,' W. Borrer. **1847.** Bab. Man., ed. ii., 64. **1848.** Ray Corres., Ray Soc., 197 et seq. Lawson's letter to Ray, 1688, in full. **1850.** Hooker and Arnott, ed. vi., 82-3. **1851.** Bab. Man., ed. iii., 61. **1855.** Hooker and Arnott, ed. vii., 83. **1856.** Bab. Man., ed. iv., 63. **1860.** Hooker and Arnott, ed. viii., 84. **1862.** Bab. Man., ed. v., 64. **1865.** Eng. Bot., ed. iii., vol. 3, 191-2. **1865.** Bentham, Handbook, i.,

280-81. 1867. Bab. Man., ed. vi. 71. 1870. Watson, Compendium, 496. 1874. Bab. Man., ed. vii., 70-71. 1874. J. of B., Miss E. Hodgson in her 'North or Lake Lancashire.' 1881. Bab. Man., ed. viii., 72. 1885. Baker's Flora, 63. 1887. Bentham, Handbook, ed. v., 90. 1888. Westm. Note-book, 76. Lawson repeated in full in Mr. Martindale's 'Early Westm. Plant Records.'

Geranium Phæum L.

1843. Jopling, Furness and Cartmel, 261. Near Bardsea Hall, rare; Aiton. 1874. J. of B., Miss E. Hodgson. Under the trees in Little Croft Park; Ulverston. 1885. Baker's Flora, 60. Miss Hodgson repeated. 1892. Naturalist, 83. Greety Gate, near Broughton-in-Furness. Now (1891) almost, if not quite, extinct.—L. P.

Geranium sylvaticum L.

C.F.R., 1670.

1775. Jenkinson, Brit. Plant, 162. In the fields of Lancashire and Westmorland. 1796. Withering, ed. iii., 602. Near Coniston and elsewhere in the north, Woodward. 1801. Withering, ed. iv., Woodward repeated. 1805. Turner and Dillwyn, ii., 370. 'Near the head of Coniston Water, Mr. Davey.'¹ 1812. Withering, ed. v., 743. Woodward repeated. 1818. Ed. vi., 795. 1830. Ed. vii., 802. 1835. Watson, New Bot. Guide, i., 300. Davey repeated, but ascribed to 'B.G.' 1842. Wordsworth's Guide, 23. Davey repeated. 1854. Phytologist, 48. By Coniston Water, W. Borrer. 1864. Linton, Lake Country, 320. Waterhead, Coniston. 1874. J. of B., Miss E. Hodgson. Seathwaite Tarn Beck at Newfield. 1885. Baker's Flora, 61. Coniston Water, and Miss Hodgson repeated.

Geranium pratense L.

C.F.R., 1597.

1864. Linton, Lake Country, 320. No locality. 1874. J. of B., Miss E. Hodgson. Near Urswick Church. Plumpton Hall gate, on the marsh. 1885. Baker's Flora, 61. Ascending from the Furness saltmarshes at Plumpton.

Geranium molle L.

C.F.R., 1597.

1864. Linton, Lake Country, 320. No locality. 1874. J. of B., Miss E. Hodgson. No locality.

Geranium pusillum Burm. f.

C.F.R., 1660.

1889. Westm. Note-book, 130. Records for Westm. Plants by Arthur Bennett, 'Lake Lancashire, ex Newbould.'

Geranium dissectum L.

C.F.R., 1632.

1843. Jopling. F. and C., 261. Barren ground and fallow places. Aiton and Wilson. 1874. J. of B., Miss E. Hodgson. No locality.

¹ D. E. Davy. See Britten and Boulger's 'Index,' 47.

Geranium columbinum L. C.F.R., 1666.

1842. Wordsworth, Guide, 23. Near Fell Foot, Newby Bridge; T. Gough. 1864. Linton, Lake Country, 320. Fell Foot, near Newby Bridge. 1874. J. of B., Miss E. Hodgson. Plumpton Woods. 1885. Baker's Flora, 62. Linton and Miss Hodgson repeated, and 'Furness shore at Bardsea, Miss Hodgson.' Ascending the hill from Coniston to Hawkshead; T. J. Foggitt. Newton, Humphrey Head, Kents Bank, and woods between Grange and Lindale; J. G. Baker.

Geranium lucidum L. C.F.R., 1633.

1861. Phytologist, 237. Roadside between Humphrey Head and Cartmel; C. J. Ashfield. 1864. Linton, Lake Country, 320. Hawkshead. 1869. Aspland, Guide. Within six miles of Grange; A. Mason. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Baker's Flora, 63. Ashfield and Linton repeated. Plentiful on roadsides about Sawrey, Newton, Allithwaite and Grange; J. G. Baker.

Geranium Robertianum L. C.F.R., 1548.

1843. Jopling, F. and C., 261. In hedges, frequent, Aiton and Wilson. 1864. Linton, Lake Country, 320. Common, no locality. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Baker's Flora, 63. Ascends to 500 yards on Coniston Old Man, J. G. B.

WHITE FLOWERED FORM.

1864. Linton, Lake Country, 320. One locality near Coniston. 1885. Baker's Flora, 63. Torver, Miss S. Beever.

Erodium cicutarium L'Hérit. C.F.R., 1597.

1874. J. of B., Miss E. Hodgson. Type common round the shores. VAR. **pilosum** Boreau.

1874. J. of B., Miss E. Hodgson. Drylands, Isle of Walney. 1885. Baker's Flora, 60. Miss Hodgson repeated.

Erodium moschatum L'Hérit.

1843. Jopling, F. and C., 261. In upland pastures in High Furness, Aiton. 1885. Baker's Flora, 60. Aiton repeated. (? An inland station for *E. cicutarium*.)

Erodium maritimum L'Hérit.

1843. Jopling, F. and C., 261. On the shore near Bardsea and Cark, Aiton and Wilson. (? *E. cicutarium*.)

Oxalis Acetosella L. C.F.R., 1548.

1843. Jopling, F. and C., 261. About Conishead Priory and Woods in Cartmel, Aiton and Wilson. 1864. Linton, Lake Country, 320. No locality. 1874. J. of B., Miss E. Hodgson. No locality.

PINK FLOWERED FORM.

1885. Baker's Flora, 6. Coniston, Miss S. Beever.

Impatiens Noli-tangere L.

C.F.R., 1633.

Persicaria siliquosa Ger. Reported by Lawson to Ray in April, 1688.

1690. Ray., Syn. ed. i., 209. By the cloth mill in Satterthwaite Parish, Lancashire, Lawson. **1696.** Ray, Syn. ed. ii., 282, repeated. **1718.** Derham, Phil. Lett., 220. Lawson's letter to Ray, statement repeated, and in **1724.** Ray, Syn. ed. iii., 317 (as *Balsamine lutea* sive N.T., C.B.). **1744.** Wilson, Syn. 193. **1763.** Martyn, Plant. Cantab., 61. **1775.** Jenkinson, Brit. Plant., 214. **1778.** Robson, S., Brit. Flora, 106. Lancashire. **1787.** Withering, ed. ii., 961. Side of Coniston Lake, Woodward. **1796.** Withering, ed. iii., 263-4. Woodward repeated. **1800.** Smith, Fl. Brit. I., 243-4. Lancashire, etc., Ray. **1801.** Withering, ed. iv., 259. Woodward repeated. **1802.** Eng. Bot., ed. i., vol. 14, 937. 'Ray mentions this elegant plant as a native of several places in Westm., Lancashire, etc. **1805.** Turner and Dillwyn, Bot. Guide, ii., 366. Woodward and Lawson repeated, but 'Ray' for the latter. **1807.** Miller, ed. Martyn, i., pt. 2. Lawson and Woodward repeated. **1812.** Withering, ed. v., 333. Woodward repeated, and **1818.** Withering, ed. vi., 358. **1828.** Smith, Eng. Flora, ed. ii., 1, 300. Several parts of W. Y. and Lancashire. **1830.** Withering, ed. vii., 332. Woodward repeated. **1835.** Baxter, Phænog. Bot. ii., 125. **1835.** Watson, New Bot. Guide, 300. Lawson and Woodward repeated, but ascribed to 'B. G.' **1848.** Ray, Corresp. Ray Soc., 197 et seq. Lawson to Ray, repeated in full. **1850.** Hooker and Arnott, ed. vi. Moist and shady woods in Y. W. and Lancashire. **1854.** Phytologist, 30. Lawson's record repeated by R. R(eynolds?). **1855.** Hooker and Arnott, ed. vii., as before, and in **1860.** H. and A., ed. viii., 87. **1861** (1855). Martineau's Guide, 185. Plentiful in the Furness Fells; near the Ferry Inn. **1864.** Linton, Lake Country, 320. Furness Fells; Coniston. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora. Woodward repeated. Foot of the Nite, near Yew-tree, and near the Railway Station, Coniston, Miss S. Beever. In a small gully which is passed in the ascent of Old Man, J. C. Melvill. Roadside near Storr's Hall, J. G. Baker. **1888.** Westm. Note-book, 77. Lawson repeated in full in Mr. Martindale's 'Early Westm. Plant Records.' **1892.** 'Naturalist,' 83. Banks of the Lickle, near Broughton-in-Furness; and near Duddon Bridge (Lancashire side); L. Petty.

N.—It is almost impossible to give all the references to this plant that have been published. The Windermere station for it has been repeated many times every year for many years.

Ilex Aquifolium L. C.F.R., 1538.

1842. Evans, Furness and F. Abbey, 26. One of the principal underwoods. 1864. Linton, Lake Country, 326. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. Woods and hedge-rows, rarely flowering in the latter.

Euonymus europæus L. C.F.R., 1548.

1864. Linton, Lake Country, 321. Coniston. 1874. J. of B., Miss E. Hodgson. Frequent in woods. 1885. Baker's Flora, 64-5. Woods at Plumpton, Haverthwaite, Bardsea, and elsewhere in Furness, Miss E. Hodgson. Windermere shore near the Ferry, and about Newby Bridge; woods of Yewbarrow, and between Grange and Lindale; J. G. Baker.

Rhamnus cartharticus L. C.F.R., 1597.

1861 (1855). Martineau, Guide, 183. Isles of Windermere, (Dickinson).¹ 1885. Baker's Flora, 65. Islands and shores of Windermere, F. Clowes, etc. Woods between Grange and Lindale, J. G. Baker.

Rhamnus Frangula L. C.F.R., 1597.

1830. Otley, Guide, ed. iv., 146. In Graithwaite Woods. 1837. Otley, Guide, ed. vi., 153. Humphrey Head. 1844. Otley, Guide, ed. vii., 152, as in ed. iv. 1849. Ed. viii., 142. 1861 (1855). Martineau, Guide, 183. Isles of Windermere (Dickinson). 1861. Phytologist, 260. Humphrey Head, Dr. Windsor. 1874. J. of B., Miss E. Hodgson. Frequent in woods and edges of peat moss. 1885. Baker's Flora, 65-6. Isles of Windermere, F. Clowes. Dr. Windsor repeated. Brathay Woods, Colton Beck Wood, and Stribers peat-bog near Cartmel, Miss E. Hodgson.

Acer Pseudo-platanus L.

1864. Linton, Lake Country, 320. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Baker's Flora, 59. 'The finest specimens I have seen are at . . . Furness Abbey . . .' etc.

Acer campestre L. C.F.R., 1570.

1885. Baker's Flora, 58-9. Lane and woods near Furness Abbey, C. Bailey; J. G. Baker. Hedges between Grange and Lindale, J. G. Baker. 1890 and 1893. Included in the Grange Guides on an unpublished locality, L. P.

NOTE.—This species is not, of course, confined to the above localities; it is fairly abundant further north in stations as yet unpublished.

¹ William Dickinson. Britten and Boulger's 'Index,' 49. In regard to this list in Martineau, see *Phytologist*, 1861, although the Guide bears the date of 1855, it was issued in 1861 with Dickinson's list.

Staphylea pinnata L.

1843. Bab. Man., ed. i., 65-6. 'Wild at Finsthwaite hedges, near Windermere,' F. H. Chorley. 1846. Phytologist, 428. William Borrer writes that he did not see it as recorded in Babington. 1885. Baker's Flora, 59. 'Reported from the Finsthwaite Woods (Babington).' A fine tree in the grounds of the Furness Abbey Hotel, J. C. Melvill.

Genista anglica L.

C.F.R., 1548.

1843. Jopling, F. and C., 262. In High Furness (Aiton); Cartmel Parks (Wilson). 1885. Baker's Flora, 67. Aiton and Wilson repeated. On the right bank of the Leven, a mile below Newby Bridge, J. Sidebotham.

[Genista pilosa L.

1843. Jopling, F. and C., 262. Frequent on rocks in High Furness, Aiton. 1885. Baker's Flora, 66-7. Aiton repeated. 'Not seen by anyone else, and I have little doubt *G. tinctoria* intended,' J. G. Baker.]

Genista tinctoria L.

C.F.R., 1570.

1843. Jopling, F. and C., 262. Beck-side, Cartmel, Wilson. 1864. Linton, Lake Country. 'Common,' no locality. 1869. Aspland's Guide. Within six miles of Grange, A. Mason. 1874. J. of B., Miss E. Hodgson. 'Abundant,' no locality.

Ulex europæus L.

C.F.R., 1570.

1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Not localised in any way in Baker's Flora, 66, but 'universally distributed,' i.e., in Lake District.

Ulex galli Planch.

C.F.R., 1849.

1850. Bot. Gaz. 1. Coniston in Lancashire, F. J. A. Hort. 1874. J. of B., Miss E. Hodgson. 'Frequent,' no locality. 1885. Baker's Flora, 66. Coniston, Ulverston, Grange, Newton (J. G. Baker?).

[Ulex nanus Forster.

1874. J. of B., Miss E. Hodgson. No locality. Included by some inadvertence by Miss Hodgson].

Cytisus scoparius Link.

C.F.R., 1548.

Sarothamnus L.

1843. Jopling. F. and C., 263. On barren hills above Penny Bridge, Aiton. 1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson, no locality.

Ononis repens L.

C.F.R., 1548.

'*O. arvensis*, var. 2. Whole plant clammy, stems prostrate.'
Withering. Is this *O. inermis* Lange?

1796. Withering, ed. iii., 627-8. At Sandscale and in the Isle of Walney, plentiful; common in dry sandy pastures in Low Furness, Atkinson. And repeated in **1801.** Withering, ed. iv., 613-14. **1805.** West. Antiq., ed. Close, 378. **1812.** Withering, ed. v., 773. **1818.** Ed. vi., 825. **1830.** Ed. vii., 834. **1842.** Evans, Furness and F. Abbey, 25. **1843.** Jopling, Furness and Cartmel, 263 (as *O. procurrens*). On the shore, Conishead Priory; Sandscale, Walney; Aiton. **1864.** Linton, Lake Country, 321. Coniston. **1874.** J. of B., Miss E. Hodgson. No locality.

Ononis horrida Lange. A spinose maritime form of *O. repens*.

1874. J. of Bot., Miss E. Hodgson. Round the shores. **1885.** Baker's Flora, 67. 'A spinose variety occurs on the Furness shores at Roosebeck and Flookborough. This is probably the plant given by Wilson as *O. spinosa*. I have not seen the true *spinosa* within our limits,' J. G. Baker.

[Ononis spinosa L.

1843. Jopling, F. and C., 263. Bank-side, Cartmel, Wilson. See previous species.]

Medicago lupulina L.

C.F.R., 1629.

1874. J. of B., Miss E. Hodgson. No locality.

Melilotus altissima Thuil.

1869. Aspland's Guide (as *officinalis*). Within six miles of Grange, A. Mason. **1885.** Baker's Flora, 68. Abundant on the railway embankment at Grange, T. Gough; Miss E. Hodgson.

Melilotus officinalis Desr. (*arvensis* Wallr.) C.F.R., 1848.

1874. J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 68. Railway embankment east of Grange—on both sides of the county boundary of Lancs. and Westm., W. Mathews.

Melilotus parviflora Lam.

1874. J. of B., Miss E. Hodgson (as *vulgaris* Willd.). No locality, but 'a starved solitary specimen near a farm.' **1878.** J. of B., 88. A specimen in Miss Hodgson's herbarium in British Museum is mentioned by Mr. Jas. Britten as being *parviflora* and not *vulgaris*. **1885.** Baker's Flora, 68. 'A solitary plant near the farmstead of Bowstead Gates, near Ulverston,' Miss E. Hodgson. 'Wrongly recorded in J. of B. as *M. vulgaris*.'

NEWTON'S DICTIONARY OF BIRDS.

A Dictionary of Birds. By ALFRED NEWTON, assisted by Hans Gadow, with contributions from R. Lydekker, C. E. Roy, and R. W. Shufeldt. Part iii. London: A. and C. Black. 1894.

PART III. (MOA—SHEATHBILL) of this most useful work has been issued by Messrs. A. & C. Black, and it is once more a great pleasure to have to express entire satisfaction with the series of well-condensed treatises which Professor Newton and his fellow-workers have contributed towards the information and instruction of students of ornithology and the reading public generally.

In the present part we have excellent notices from the pen of Professor Newton under the respective headings of Moulting, Nidification, Nightjar, Ostrich, Owl, Parrot, Partridge, Penguin, Petrel, Pheasant, Pigeon, Plover, Rhea, Ruff, Sandgrouse, Sandpiper, with many shorter papers of equal merit, all of which deserve the most careful and attentive consideration.

The anatomical papers by Dr. Gadow are in no degree less important than those which have already appeared in parts i. and ii. Collectively they reach a standard of excellence hitherto unapproached by any work treating on the structure of birds. The chief of those in part iii. relate to the nervous and muscular systems, and regarding these latest contributions to the Science of Comparative Anatomy it will at once strike the student that any system of classification based on the most variable muscles of the leg, according to their mere presence or absence, must invariably break down when put to a practical test, and that it is certain that similar muscular combinations in two or more birds do not necessarily imply relationship.

There are other papers by Dr. Gadow, one under the heading of *Pterylosis*, which signifies the plumage of birds considered in regard to the distribution of its growth. Another admirable paper is on the Reproductive Organs.

Mr. Lydekker contributes an article on the *Odontornithes*, a term used to designate the fossil birds found in 'Cretaceous' deposits in America, and distinguished by the presence of teeth, a character apparently common to all cretaceous birds; of the exact position of these in relationship with reptilian ancestors and with existing avian forms it is impossible to speak with any certainty—many very hard and obscure points remaining to be cleared up.

We must not fail to notice the number of beautiful figures which embellish the three parts of this work, from electrotypes obtained from various sources, but chiefly from the woodcuts which illustrate Swainson's great work on the 'Classification of Birds.'

NOTE—ORNITHOLOGY.

Grouse and the Storm.—The late severe weather has caused the Grouse (*Lagopus scoticus*) to leave the moors by hundreds. On Monday, January 21st, quantities made their appearance on the Harrogate Corporation Farm, about the outbuildings and in the fields, appearing quite tame. Many of the fields along Skipton Road were noticed to have numbers of grouse about in them, and on Tuesday several small lots were seen on Harlow Moor and Birk Crag. In Nidderdale they have come in large numbers into the lower parts, and about Dacre Banks especially, a lot have been seen. The deep snow frozen hard upon the top effectually prevents the birds getting at their natural food. Not since 1886 have the birds been driven from the moors in such a manner. In the centre of Harrogate, Blackbirds, Redwings, Chaffinches, Greenfinches, etc., have been seen in the back yards and gardens of the houses in search of food.—R. FORTUNE, Harrogate, January 25th, 1895.

NOTE—ALGÆ.

Provisional List of Diatoms found at Cusworth, near Doncaster.—Little or no systematic work has been done by the Yorkshire Micro-Zoology and Micro-Botany Committee since the last annual meeting. What has been done is of a local character, undertaken by Mr. J. N. Coombe and myself, referring chiefly to investigation of diatomaceous gatherings at Cusworth, near this town. The following is a provisional list of Diatoms found:—

<i>Campylodiscus costatus.</i>	<i>Meridion circulare.</i>
<i>Cocconeis pediculus.</i>	<i>Navicula ovalis.</i>
<i>Cocconema cymbiforme.</i>	<i>Nitzschia sigmoidea.</i>
<i>Cocconema cistula.</i>	<i>Nitzschia tenuis.</i>
<i>Cocconema lanceolatum.</i>	<i>Odontidium harrisonii.</i>
<i>Cyclotella kützingiana.</i>	<i>Odontidium mutabile.</i>
<i>Cymatopleura elliptica.</i>	<i>Pinnularia gracilis.</i>
<i>Cymatopleura solea.</i>	<i>Pinnularia oblonga.</i>
<i>Cymbella cuspidata.</i>	<i>Pinnularia viridis.</i>
<i>Cymbella ehrenbergii.</i>	<i>Pinnularia viridula.</i>
<i>Denticula tenuis</i> (?).	<i>Pinnularia radiosa.</i>
<i>Diatoma vulgare.</i>	<i>Pleurosigma attenuatum.</i>
<i>Diatoma elongatum.</i>	<i>Pleurosigma spencerii</i> (?).
<i>Fragilaria capucina.</i>	<i>Stauroneis phæniciæenteron.</i>
<i>Gomphonema acuminatum.</i>	<i>Surirella biseriata.</i>
<i>Himantidium undulatum.</i>	<i>Synedra radians</i> (?).

Melicerta ringens is also plentiful, and *Brachionus rubens*.—M. H. STILES, Doncaster, Oct. 11th, 1894.

NOTES AND NEWS.

At a recent meeting of the Dublin Naturalists' Field Club, Mr. G. H. Carpenter read a paper (published in the January number of the Irish Naturalist) on 'Animals found in the Mitchelstown Cave' (Co. Cork). Besides the rediscovery of the blind campodean *Lipura stilicidii* (taken in this cave in 1857 by Messrs. Wright and Haliday), he announces the occurrence there of a cave spider, *Porrhomma myops* Sim., and another blind campodean indistinguishable from *Degeeria cavernarum* Packard, of the North American caves. We understand that Mr. Carpenter is anxious to know whether any of the Yorkshire or Derbyshire caves have been searched for insects, and would be grateful for information on the subject (which may be sent to him at the Science and Art Museum, Dublin). It seems almost certain that our British caves must possess some members of the peculiar subterranean fauna so abundant in Austrian and North American caverns.

BIRD NOTES

FROM THE MID-TRENT VALLEY FOR 1894.

F. B. WHITLOCK,
Beeston, Notts.

THE weather of the past year, as far as its influence on local bird-life is concerned, calls for but little remark. After a mild close to 1893, a sharp spell of frost set in with the new year, and though it was severe enough whilst it lasted (all still waters being frozen, and the streams partially so), a thaw soon occurred, and by the 14th January the weather was as open and mild as before. February and March were of the normal type, but the frequent prevalence of west winds is perhaps worthy of remark. The spring months were sunny and dry, if we except June, which was showery and rather cold, like the ensuing summer, which was itself more or less wet up to the commencement of September; the remaining portion of the year being more remarkable for gales and rain than for any severe cold.

Ducks (*Anatidæ*). The frost had its usual effect on the members of the duck tribe, driving them from their accustomed haunts to the open waters of the Trent. I had one interesting morning amongst them. Choosing a part of the river where the banks allowed of a successful stalk, I peeped over, abreast of a long island covered with willows and dead herbage. On the margins of the water, which was frozen on either side to a width of about ten feet, a row of Mallards (*Anas boschas*) were squatting, intermingled at intervals with a few disconsolate-looking Teal (*Anas crecca*). Nearer the middle of the river were four or five adult Scaups (*Fuligula marila*) and several Tufted Ducks (*Fuligula cristata*), whilst immediately below me were four immature Golden-eyes (*Clangula glaucion*), which were constantly diving in search of food. Wigeons (*Anas penelope*) were also represented by several wary individuals; and a small white-looking duck, which looked like an adult male Smew (*Mergus albellus*) came flying down the stream. Some distance away I recognised a female Scaup uttering its loud and harsh cry. A little later in the same week a fine Goosander (*Mergus merganser*) was shot at, but escaped; and on the 13th I examined two Pochards (*Fuligula ferina*), one Scaup, and three Smews. Two of the latter were adult females, though I should say one was older than the others. Neither showed the black markings on the lores very plainly. These examples had been killed at Shelford, a village on the Trent some seven

miles below Nottingham. An adult male was also reported at the same time. All the foregoing species remained on the Trent some time after the frost broke up, and on one occasion I counted upwards of one hundred ducks on the wing at the same time. Of breeding species I have little to record, though there must have been a nice number of the common wild duck hatched. I frequently saw flights of over sixty in the autumn months of the year.

Skylark (*Alauda arvensis*). Previous to the setting-in of the frost a constant stream of these birds was passing over Nottingham towards the south for several days. Those that remained were very wild.

Reed Bunting (*Emberiza schœniclus*). Contrary to my usual experience, I found this species pretty common all through the winter. They frequented the towing path in company with

Tree Sparrows (*Passer montanus*), another species usually very scarce during the winter. The latter, however, were by no means numerous.

Twite (*Fringilla flavirostris*). I met with a small party on February 18th. The call-note sounded like 'chillip, chillip.'

Lesser Redpoll (*Linota rufescens*). This species nested with us as usual, and in the autumn I met with a little flock feeding on the seeds of the greater willow-herb.

With regard to the arrival of spring migrants, I should sum up the result of my observations as showing that whilst individuals were early, the main body were a little later than usual. The Pied Wagtails (*Motacilla yarrellii*) began to return about the middle of March, and I heard the first Chiffchaff (*Phylloscopus rufus*) on the 25th of the same month. I saw a White Wagtail (*M. alba*) on April 1st, and on the following day I saw a single Yellow Wagtail (*M. raii*) flying, rather high up, to the south-west, wind light, S.E. to S., and also a Sand Martin (*Cotile riparia*) flying in the same direction. On April 3rd I saw five more Sand Martins and another Yellow Wagtail, but in the evening the weather changed, the wind veering to N.E., with a great fall in temperature. An improvement set in on the 7th, and on the 8th I saw a few more of the same species, and also a Swallow (*Hirundo rustica*) and a Wheatear (*Saxicola ænanthe*). The evening was warm, and I noted a flock of 60 or 70 Sand Martins passing to the south-west. A few Willow Wrens (*Phylloscopus trochilus*) had arrived by the 9th, and many parties of Yellow Wagtails passed by on

the same date. It was remarkable how closely each flock followed the exact line taken by the previous ones. Sand Martins were passing commonly also. I observed a few Tree Pipits (*Anthus trivialis*) on the 15th, and about this time I saw several more White Wagtails. I am now inclined to think that this bird migrates from S.W. to N.E., contrary to the direction of most of our local spring visitors, but the species is represented in too limited numbers to make me very certain. On the 18th I heard the Cuckoo (*Cuculus canorus*). Reports from two different localities in Notts give an earlier date by a week. I also heard a solitary Corn Crake (*Crex pratensis*). This individual was in an osier bed, where the herbage had been in places cut for litter. I several times saw it come out and remain calling on one of the bare patches. This was the only example I met with until a fortnight later. I also heard the first Sedge Warbler (*Acrocephalus phragmitis*) at the same time. I saw a Common Whitethroat (*Sylvia rufa*) on the 22nd, and the Lesser species (*Sylvia curruca*) a few days later. I heard a Grasshopper Warbler (*Locustella naevia*) reeling away on the 28th, and another individual heard in a different locality was observed to leave its usual cover at dusk, for some tussocky hollows in a neighbouring meadow, where it was heard uttering its peculiar note. The first Swifts (*Cypselus apus*) were noted on the 25th, but it was not till the beginning of May that I saw a House Martin (*Chelidon urbica*). May 9th was rainy, with a south-west wind. Perhaps the largest migration of Sand Martins I ever saw took place this day. At about 6.30 p.m. the air seemed thick with them, all flying to the usual point, and, unlike a number of Swallows, not stopping to hawk for insects over the river. They were again very abundant the following day. It was not until the 11th that I heard the first Reed Warbler (*Acrocephalus streperus*), always a late species with us.

To resume notes on individual species—

Redshank (*Totanus calidris*). Our breeding birds arrived about March 18th. We had at least five pairs, all of which, I believe, brought off their young. One nest was found, but only a single egg taken, the parent birds being met with by myself in an adjacent marsh, where their young were concealed. The male was very anxious whilst I was near. Once he perched on the topmost twig of a tall hawthorn bush, where he remained swaying about and uttering his alarm note until I left the neighbourhood

Lapwing (*Vanellus cristatus*). Breeding birds were numerous, and we had large numbers wintering in the district up to the end of the year. In addition to these, I observed considerable migration on the 18th November, and still greater on the 25th. On the latter day, for three or four hours, flocks were passing every few minutes; at one time six distinct flocks were in view at the same moment.

Amongst the smaller waders, we had the usual black-breasted Dunlins (*Tringa alpina*), and I also saw a poor cripple in winter plumage in April. The Common Sandpiper (*Actitis hypoleucos*) was very common on return migration, and I saw a single example of the Green species (*Helodromas ochropus*) in the spring, and also a few Ringed Plovers (*Ægialitis hiaticula*).

Turtle Dove (*Turtur communis*). This species continues to increase. I found eggs by 31st May.

Turdinæ—Fieldfare (*Turdus pilaris*). During the frost in the early part of the year we had a very large flock, which haunted a field where sheep were regularly fed. I observed many flocks passing to N.E. in March and April. They were very numerous again in October, far more so than the Redwings (*Turdus iliacus*), which of late years have become comparatively scarce. Throughout October, Blackbirds (*T. merula*) and Thrushes (*T. musicus*) were very abundant, especially about the 21st. A pair of the latter which breed in my garden had six eggs.

Hirundines. We had a few House Martins and Swallows lingering about till the last week in October. I saw a pair of the former feeding their young in September, and an individual of the latter as late as November 7th.

Spotted Flycatcher (*Muscicapa grisola*). This species is generally said not to indulge in song. This is not correct. I had several opportunities of hearing a male in my own garden. Certainly the song is very unpretentious, and pitched in so high a key as to remind one of the squeaking of a bat. The character of the song is a little bit like that of the Redbreast. I was surprised to hear this same individual singing again in September.

Nightingale (*Daulias luscinia*). I was sorry to pick up an example from under the telegraph-wires which pass a wood where three or four pairs breed every year. I noticed one nest.

Coal Tit (*Parus ater*). Just after I had examined the above victim and was sitting on a bank side, a Coal Tit flew from out of the wood and hopped into a hole within a few inches of where I was resting. Carefully enlarging the hole, I discovered a large brood of young, just hatched.

Willow Wren (*Phylloscopus trochilus*). I twice found Cuckoos' eggs in the nest of this species in May. The eggs were of the Redbreast type. In the first case the parent birds had deserted their charge.

Red-legged Partridge (*Caccabis rufa*). This species is very erratic in its nesting habits. I had one egg given me taken from a pheasants' nest, and two others, from different localities, which had been dropped in the fields at random. Eggs of this species, when newly laid, are tinted with a beautiful lilac, something like the bloom on a violet plum. On wetting the shell the yellow ground colour at once appears, but fades again as the egg dries.

Pheasant (*Phasianus torquatus*). When searching in a wood for a Chiffchaff's nest, I started back at the sight of what I took to be a snake. It was the tail of a hen Pheasant which protruded from some brambles, under which she was quietly brooding. The deception was very perfect, the black barrings and rounded edges of the feathers presenting a very snake-like appearance.

Great Grey Shrike (*Lanius excubitor*). A small party seem to have found their way into this district in October. On the 7th I saw an example near Beeston, and rather more than a fortnight later a second was caught alive at Gotham. Both these were of the common type. On December 13th I saw what I feel sure was a third, sitting on the telephone-wires above South Parade, in Nottingham. A strong wind was blowing, and the bird seemed to have great difficulty in retaining its balance.

White Wagtail (*Motacilla alba*). Amongst a number of the Pied species feeding on a sandbank in the Trent, I noticed a family party of this species on September 2nd.

At the foot of my neighbour's garden is a row of the broad-leaved poplar, the foliage of which in summer harbours great numbers of small insects. During September these trees are frequented by Willow Wrens, Chiffchaffs, Lesser Whitethroats, and Blackcaps, all of which may be seen busily engaged in feeding on these insects in the upper branches. Wishing for a specimen of the last-named, I secured a male. On picking it up I was conscious of a very sickly smell which pervaded the body. It seemed to arise from the juice of elder berries, with which the intestines of the bird were deeply discoloured. The above-named species give way at the fall of the leaf to Chaffinches, Lesser Redpolls, Tits, and the common House Sparrow, all of which feed as eagerly on

the small insects as do the Warblers. On the 30th of September I saw a very ragged-looking Blackcap (*Sylvia atricapilla*) which was not over its moult.

Amongst the Gulls and Terns, I noticed Kittiwakes (*Rissa tridactyla*), Common Gulls (*Larus canus*) and Black-headed Gulls (*L. ridibundus*), and the Common Tern (*Sterna fluviatilis*) and Black Tern (*Hydrochelidon nigra*), both in spring and autumn.

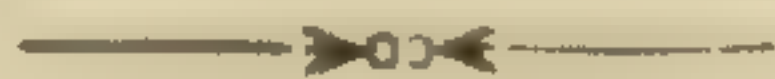
The only stragglers from the coast of any interest were a Grey Phalarope (*Phalaropus hyperboreus*), which was obtained near Shelford about October 26th, and a Little Auk (*Mergulus alle*) killed on the Trent in Long Eaton parish, November 10th. It was a beautiful adult example. I saw a Grey Plover (*Squatarola helvetica*) on November 18th. It is perhaps worth mentioning that there had been nothing in the nature of a gale to bring the Auk inland.

NOTES AND NEWS.

A moiety of the balance of the Lyell Fund has been awarded to Mr. Percy F. Kendall, of the Yorkshire College, Leeds, in recognition of his researches in glacial geology.



The Council of the Geological Society has awarded the Lyell Medal for this year to the Rev. J. F. Blake, who is well known to Yorkshire geologists for his work on the Jurassic rocks. Mr. Blake has left this country to take an appointment in India.



We note that at the 62nd Annual Meeting of the Entomological Society of London, held 16th January, 1895, the Rev. Canon Fowler, M.A., F.L.S., was again elected as one of the Secretaries, and the Right Hon. Lord Walsingham, LL.D., F.R.S., appointed Vice-President for the Session 1895-6.



The Isle of Man will enjoy the unique advantage of two independent geological surveys. That entrusted by the Manx Government to Prof. W. Boyd Dawkins, of Manchester, has been in progress for several years. On behalf of H.M. Geological Survey, Mr. G. W. Lamplugh, formerly of Bridlington Quay, has been engaged for two years in mapping the island on the scale of six inches to the mile. As usual, the map will be issued to the public on the smaller scale of one inch to the mile. It will be published, when complete, as a single large sheet in two editions, 'drift' and 'solid.'



Following an experiment instituted by him last year, Mr. Henry Crowther, F.R.M.S., curator of the Leeds Museum, gave, during the month of January, four afternoon Museum Lectures, in the Lecture Theatre of the Philosophical Hall, followed by practical demonstrations and explanations of the subject of the lecture in the Library. The attendance at the whole of the lectures was over six hundred. The subjects for the four lectures were 'Monkeys,' 'Birds that cannot fly,' 'Injurious Insects,' and 'Minerals: what they are and how they are procured.' Special lantern slides and models were prepared to illustrate the lectures, and there is every evidence, from the spirit of inquiry aroused, that they have made more popular those contents of the Leeds Museum which they dealt with.

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VERMES, 1884 to 1892.

THE present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts. ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; and 71, Isle of Man.

ANON. [not signed].

Lanc. S.

Manchester Microscopical Society [with record of *Alcyonella fungosa*, new to district, found by Mr. Etchells]. Research, Oct. 1889, p. 94.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889.—Gorton [May 11th ; *Melicerta ringens*, *Rotifer vulgaris*, *Stephanoceros*, *Plumatella*, *Fredericella*, and *Lophopus crystallinus* noted]. Tenth Ann. Rep. Man. Micr. Soc., for 1889, publ. 1890, p. 111.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889. . . . Southport [July 13th ; *Terebella conchilega* and *Pectinaria belgica* (empty tubes) noted]. Tenth Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, pp. 114-116.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889. . . . Stalybridge [Stamford Park, Hurst, and Lees, August 24th ; *Actinurus neptunius*, *Actinophrys eichornii*, and *Rotifer vulgaris* noted as found]. Tenth Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, pp. 117-118.

ANON. [not signed ; Editorial].

York, N.E.

[**Superstition anent Hairworm (*Gordius aquaticus*) in Ryedale**]. Nat., Aug. 1892, p. 240.

C. R. BEAUMONT.

Lanc. S.

A Ramble round Daisy Nook [and Fitton Ponds, near Oldham ; *Rotifer vulgaris*, *Melicerta ringens*, *Floscularia ornata*, and *Stephanoceros eichornii* occur and are popularly described]. Trans. Rochdale Lit. and Sci. Soc., vol. 2, for 1889-90, publ. 1890, pp. 74-77.

F. JEFFREY BELL.

'Yorkshire.'

The 'Grouse Disease' [two Grouse picked up dead on a Yorkshire Moor had no other parasite than the 'common tapeworm']. Zool., July 1887, p. 265.

F. JEFFREY BELL.

York Mid W.

Grouse Disease [extract from a letter written by Lord Walsingham, that the Grouse at Blubberhouses were quite free from the true epidemic caused by *Strongylus pergracilis*, Cobbold's threadworm]. Zool., Aug. 1887, p. 302.

J. W. BLAGG.

Lanc. S.

Notholca scapha [in a pond near Rawtenstall]. Sci. Goss., July 1889, p. 167.

EDWARD C. BOUSFIELD.

Lanc. S.

Free Swimming Rotifers [noting that Mr. J. E. Lord's 'Colurus' is a very common rotifer, and that its name is *Lepadella*]. Sci. Goss., July 1884, p. 163.

HERBERT C. CHADWICK.

Lanc. S.

On *Gyrodactylus elegans* [a Trematode Worm Parasitic on Sticklebacks in a pond at Eccles near Manchester, associated with large numbers of *Trichodina*; habits and structure described and illustrated]. Ann. Rep. Manch. Micros. Soc. for 1883-4, pub. 1884, pp. 7-14, with woodcuts.

HERBERT C. CHADWICK.

Cheshire.

On a small collection of Hydroid Zoophytes and Polyzoa from the Mena Straits [with a reference to a varietal form of *Crisia eburnea* found at New Brighton]. Ann. Rep. Manch. Microsc. Soc. for 1883-4, pub. 1884, p. 56.

WM. CHAPMAN.

York Mid W. or S.W.

Plumatella repens near Leeds [17th July, 1886; new to the locality]. Nat., Sep. 1886, p. 276.

A. CHOPIN.

Lanc. S.

[List of 34 species of] Rotifers found at various times in the pond in Alexandra Park [Manchester; a bare list with no other information]. Tenth Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, p. 120.

A. CHOPIN.

Isle of Man.

Zoological Notes at Port St. Mary, Isle of Man [with complete lists of captures: the Polyzoa were *Aetea recta*, *A. truncata*, *Lucratea chelata*, *Scrupocellaria scrupea*, *S. reptans*, *S. scabra*, *Bugula murayana*, *B. flabellata*, *Flustra foliacea*, *Membranipora pilosa* and var. *dentata*, *Schizoporella hyalina*, *Mucronella peachii*, *Crisia denticulata*, *Tubulipora lobulata*, *Alcyonidium hirsutum*, *Vesicularia spinosa*, and *Pedicellina cernua*; the Annelids were *Serpula vermicularis*, *Nereis pelagica*, *Spirorbis borealis*, and *Harmothoe imbricata*]. Journ. of Micros., April 1890, pp. 126-129.

R. CLARK.

Notts.

Notholca Acuminata [found March 27th, in water taken from a clear ditch on Hayton Common, near Retford; only one, a London, locality given in Hudson's book]. Sci. Goss., June 1891, p. 139.

T. D. A. COCKERELL.

Northumberland S., Cheviotland.

North of England specimens in the British Collection at the British Museum [including *Glossiphonia granifera* (Northumberland, J. Alder), *Meckelia annulata* (Berwick), *Phyllodoce lamelligera*, *Pectinaria belgiaca*, and *Arenicola piscatorum* (all Berwick Bay); also *Retepora beaniana* King, from Northumberland]. Nat., Aug. 1888, p. 230.

J. PERCY A. DAVIS.

York N.E.

[*Flustra foliacea* observed by] the Yorkshire Naturalists' Union at Hayburn Wyke [on July 11th, 1891]. Nat., Oct. 1891, p. 294.

JAMES FLEMING.

? Lanc. S.

[*Alcyonella fungosa*, a polyzoon new to 'this district']. Proc. Manch. Lit. and Phil. Soc., Oct. 11th, 1886, xxvi. 7.

JAMES FLEMING.

Cheshire.

Rambles during the year 1887.—Bramhall [2nd July; *Brachionus*, *Scaridium longicaudum*, *Salpina*, *Metopidia*, *Monostyla cornuta*, and *Stephanoceros* noted in pond at Mile End]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, p. 65.

HILDERIC FRIEND.

Cumberland, Westmorland.

A Chat about Worms [*Spirorbis nautiloides* Lk. and *S. lucidus* Mont., *Serpula*, *Terebella*, *Sabellaria*, *Arenicola piscatorum*, *Lumbricus terrestris*, *Allurus tetraëdrus*, *Allolobophora boechii*, *Megascolex*, and 'Brandling' (*A. fætida*) stated as all having been found in one season in Cumberland]. Sci. Gos., July 1890, pp. 158-159 and five woodcuts.

HILDERIC FRIEND.

Cumberland, Westmorland.

Annelids of Cumberland and Westmorland [a list of 17 worms and three leeches, with localities and habitats stated; critical species named by experts]. Sci. Goss., July 1890, p. 163.

HILDERIC FRIEND.

Cumberland, Westmorland, York S.W.

Earth-worms of the North of England [enumerating 14 species; *Lumbricus terrester* L., *L. rubellus* Hoffm., Cumberland, *L. purpureus* Eis., Cumberland and S.W. York, *L. fatidus*, Kendal and S.W. York, *Allolobophora mucosa* Eis., Kendal and Apperley Bridge, *A. turgida* Eis., Carlisle, *A. trapezoides* Dug., Cumberland, *A. chlorotica* Rosa, Cumberland and S.W. York, *A. longa* D'Ud., Cumberland, *Lumbricus eiseni* Lev., Cumberland, *Allurus tetraëdrus* Eis., Cumberland and S.W. York, *Perichæta indica*, Kendal, and *Lumbricus multispinus* Grube? S.W. York; localities and notes given]. Nat., Jan. 1891, pp. 13-15.

HILDERIC FRIEND.

York, Cumberland.

Some Annulosa from Cumberland and Yorkshire [noting *Arenicola piscatorum* and *Nephtys longisetosa* on the Solway, *Nephelis octoculata*, *Clepsine sexoculata* and *Cl. bioculata* in Monkhill Lough near Carlisle, and *Lumbricus eiseni* in considerable numbers at Apperley Bridge]. Nat., Feb. 1891, pp. 62-63.

HILDERIC FRIEND.

Cumberland, Westmorland, York Mid W. and S.W.

British Earthworms [a Presidential Address to the Wesley Scientific Society; a general sketch and a chronological list of the British species; with notes on the occurrence of *Perichæta indica* Bed., a foreign species, in a greenhouse at Kendal, 1890; *Lumbricus eiseni* Lev., one taken by the river Eden in June 1890, and afterwards in plenty in one locality in Yorkshire; and *L. multispinus* (which is, however, not an earthworm, but an *Enchytræus*) abundant near Apperley Bridge, Yorkshire]. Internat. Journ. of Microscopy, March 1891, pp. 65-69, and plate 5.

HILDERIC FRIEND.

Cumberland, York Mid W.

The Square-Tailed Worm [(*Allurus tetraëdrus* Eisen) treated of at length, with four woodcuts, synonymy, etc. 'I have found it in Yorkshire and Cumberland, together with the yellow variety']. Sci. Goss., Ap. 1891, pp. 80-82.

HILDERIC FRIEND.

York Mid W. and S.W., Cumberland.

Earthworms of Scotland [with references also to *Allolobophora longa* Ude, found in Cumberland and Yorkshire, and *Allurus tetraëdrus* Eis. var. *lutea* Eis., found in Yorkshire and Scotland]. Internat. Journ. of Microsc., June 1891, p. 167.

HILDERIC FRIEND.

York S.W. and Mid W.

New Yorkshire Earthworms [*Lumbricus rubescens* (Temp.) found in the Haigh Beck, Idle, and a *Dendrobæna* not yet identified, from near the Strid, Wharfedale]. Nat., Sept. 1891, pp. 276-277.

HILDERIC FRIEND.

Cumberland.

A Rare British Earthworm [(*Lumbricus eiseni* Lev.) from Cumberland and Gloucestershire]. Nature, Feb. 18th, 1892, p. 365.

- HILDERIC FRIEND.** Cumberland, Yorkshire.
British Annelids. With especial reference to the Earthworms of Essex [and mention of the rich golden variety of *Allurus tetraëdrus* (Savigny) in Cumberland and Yorkshire]. Essex Nat., Jan.-March 1892, p. 33.
- HILDERIC FRIEND.** York S.W., Mid W., S.E., Notts.
New Yorkshire Earthworms; with an emended list of North British Species [describing *Allolobophora subrubicunda* Eisen, at great length; it is from Clumber Lake, Keighley, Apperley, Hull, and *A. boeckii* (Eisen) from Bolton Abbey, both new to Britain; *A. arborea* near Carlisle; *Allurus* var. *luteus* at Calverley; *Allolobophora lactea* Friend, Apperley; *A. longa* Ude, round Carlisle; article finishes with a full list of 19 species of Earthworms, with localities, found in the North of England and South of Scotland]. Nat., March 1892, pp. 87-90.
- HILDERIC FRIEND.** York Mid W.
Curiosities of Worm-Life [with Notes of Abnormal Forms at Bolton Woods, Yorkshire, and elsewhere]. Sci. Goss., May 1892, p. 109.
- HILDERIC FRIEND.** York S.W., Lancs.
Worm-Hunting in Sussex [and mention of *Lumbricus rubescens* at Idle, near Bradford, and *Allolobophora celtica* in Lancashire]. Sci. Goss., June 1892, pp. 123-124.
- HILDERIC FRIEND.** York S.W. and Mid W.
A New Yorkshire Earthworm [*Allolobophora profuga* Rosa, found at Apperley and near Bradford]. Nat., Aug. 1892, pp. 247-249.
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On Hybridity among Worms [with note of *Lumbricus rubellus* Hoffm. and *L. rubescens* Frnd., in union near Bradford]. Nat., Oct. 1892, p. 304.
- HILDERIC FRIEND.** Cumberland, York S.W. and Mid W., Lancashire.
Studies of British Tree- and Earth-Worms [noting *Allolobophora* (*Dendrobæna*) *celtica* Rosa, from Carlisle, Idle, Yorkshire, 1891, and Morecambe, 1892; *A. (D.) boeckii* Eisen, from between Bolton Abbey and the Strid, July 1891, and Apperley, 1892; *A. (D.) subrubicunda* Eisen, from Yorkshire, *A. (D.) arborea* Eisen, from Esholt, 1891; *A. (D.) eiseni* Levinson, from Carlisle, 1890; and *Lumbricus rubens* described as new, discovered between Idle and Eccleshill, near Bradford, Yorks, in 1890]. Journ. Linn. Soc., Zoology, No. 153, Oct. 15th, 1892, pp. 292-315, and plate 21.
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New British Earthworms [described; *Lumbricus rubescens* sp. nov., Yorkshire, 1891; *Allolobophora cambrica* sp. nov., Yorkshire, Notts; *A. boeckii* Eisen, Airedale and Wharfedale; *A. arborea* Eisen, Cumberland, Yorkshire; *A. celtica* Rosa, Carlisle, Morecambe; and *Lumbricus eiseni* Lev., Carlisle]. Nature, Oct. 27th, 1892, pp. 621-623, with three woodcuts.
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G. E. HASTINGS.

Northumb. S.

[Sea-Mouse (*Aphrodita aculeata*) at Tynemouth]. N. H. J., Oct. 15th, 1888, p. 160.

W. A. HERDMAN.

Lanc. S., Chesh.

[Address on the work undertaken by the Liverpool Marine Biology Committee: referring to *Idmonea serpens*, an abundant polyzoon on some of the sand-banks, *Malmgrenia castanea* and *Hermadion assimile*, two rare worms]. Proc. Manch. Lit. and Phil. Soc., Dec. 7th, 1885, xxv., 101-103.

W. A. HERDMAN.

Cheshire.

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W. A. HERDMAN.

Cheshire.

Introduction [to First Report on the Fauna of Liverpool Bay; *Crisia eburnea*, *Cellepora pumicosa*, *Idmonea serpens*, *Flustra foliacea*, *Scrupocellaria scrupea*, *Amathia lendigera*, *Gemellaria loricata*, *Sabella penicillus* and *Serpula vermicularis* recorded for Hilbre Swash, May 9, 1885; *Pedicellina cernua* var. *glabra*, *Bowerbankia imbricata*, *Anguinella palmata*, *Bugula flabellata*, *B. turbinata*, *Bicellaria ciliata*, with special note on habitat of *Flustrella hispida*; *Idmonea serpens*, *Scrupocellaria scrupea*, *Amathia lendigera*, *Crisia eburnea*, and *Alcyonidium gelatinosum* dredged in a deep hole near Point of Ayr; *Pedicellina gracilis*, *Cellaria fistulosa*, *Schizoporella hyalina*, *Membranipora aurita*, *Umbonula verrucosa*, *Mimosella gracilis*, *Ætea truncata*, *Æ. recta*, *Mucronella coccinea*, *Eucratea chelata* var. nov. *elongata*, *Hermadion assimile*, *Hermione hystrix*, *Harmothoe halioti*, *Sthenelais zetlandica*, *Sagitta bipunctata*, and *Filograna implexa* noted for S. end of Isle of Man; *Sabellaria alveolata*, *Siphonostomum gelatinosum* and *Pectinaria belgica* recorded for Hilbre Island; special note on *Sabellaria alveolata* there]. First Report on Fauna of Liverpool Bay, 1886, pp. 1-15.

W. A. HERDMAN.

Isle of Man.

[*Hermadion assimile* incidentally noted in] Report upon the Crinoidea, Asteroidea, Echinoidea, and Holothuroidea of the L[iverpool]. M. B. C. District. First Rep. Fauna of Liverpool Bay, 1886, p. 136.

W. A. HERDMAN.

Isle of Man.

Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [giving details of the occurrence of numerous species]. First Rep. Fauna of Liverp. Bay, 1886, pp. 318-341, and plate 12.

W. A. HERDMAN.

Cheshire.

The Foundation and First Season's Work of the Liverpool Marine Biological Station on Puffin Island [including notes on the rich fauna of Hilbre Island; *Sabellaria alveolata* and *Flustrella hispida* mentioned]. Proc. Biol. Soc. Liverp., vol. ii., 1887-88, publ. 1888, pp. 39-40; also bound up with Fauna of Liverpool Bay, vol. ii., 1889, with same pagination; and issued as separate report, 1888, with pagination altered to 4-5.

W. A. HERDMAN.

Isle of Man.

Marine Biology and the Electric Light [giving results of experiments in Port Erin and Ramsey Bays, May 1888; *Stomatopora johnstoni*, *S. incrassata*, *Tubulipora lobulata*, *Lichenopora hispida*, *Cellepora dichotoma*, *Membranipora aurita*, and *Cellaria fistulosa* taken]. Nature, June 7th, 1888, pp. 130-131.

W. A. HERDMAN.

Cheshire.

The Utility of Specific Characters [with Note on the Coloration of *Bugula turbinata* on Puffin Island]. Nature, Dec. 27th, 1888, pp. 200-1.

W. A. HERDMAN.

Isle of Man.

The Second Annual Report of the Liverpool Marine Biological Station on Puffin Island [with notes of numerous Polyzoa off the Isle of Man]. Report, 1889, separate pamphlet of 26 pages in cover, with map; also included in Second Report on Fauna of Liverpool Bay, 1889, with slightly different pagination, 24 pp.; and Proc. Liverp. Biol. Soc., vol. iii., 1888-9, publ. 1889, p. 36.

W. A. HERDMAN.

Isle of Man.

The Liverpool Marine Biology Committee's Easter Dredging Cruise [round the S. end of the Isle of Man, April 18th, 1889, and following days; *Sagitta* noted]. Nature, May 9th, 1889, p. 47.

W. A. HERDMAN.

Isle of Man.

Brief Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [enumerating *Carinella lineata*, *Hermione hystrix*, *Filograna implexa*, *Amathia lendigera*, and *Hermadion assimile* as found]. Back Trans. Isle of Man Nat. Hist. Soc., i., 54-56; publ. with Yn Lioar Manninagh, July 1889.

W. A. HERDMAN.

Isle of Man.

Third Annual Report of the Liverpool Marine Biological Station on Puffin Island [with note on *Cellaria fistulosa*, *C. sinuosa* (new to fauna), *Cellepora dichotoma*, *Stomatopora major*, *S. johnstoni*, *Tubulipora lobulata*, and *T. flabellaris* off the Manx coast]. Trans. Liverp. Biol. Soc., vol. iv., 1889-90, publ. 1890, p. 64; reprinted as a separate report, with pagination altered to 31, 1890; reprinted, with pagination again altered to 29, in Third Report on Fauna of Liverpool Bay, 1892.

W. A. HERDMAN AND J. A. CLUBB.

Cheshire.

[Flustra foliacea at Hilbre Island, noted in] Third Report upon the Nudibranchiata of the L[iverpool].M.B.C. District. Trans. Liverp. Biol. Soc., vol. iv., 1889-90, publ. 1890, p. 142; reprinted, with same pagination, in Third Report on Fauna of Liverpool Bay, 1892.

W. A. HERDMAN.

Isle of Man, Cheshire, Lanc. S.

Fourth Annual Report of the Liverpool Marine Biological Station on Puffin Island [including notes on *Arenicola* and *Scoloplos* at Hilbre Island, *Sabellaria alveolata* spreading there, *Lumbrinereis fragilis*, *Sthenelais limicola*, *Malmgrenia castanea*, *Syllis tubifex*, *Sphaerodorum flavum*, *Eunice* sp., *Hermadion pellucidum* and *H. assimile*, dredged in the Irish Sea, 25 miles N.W. of Liverpool Bar, *Onuphis conchylega*, *Owenia filiformis*, *Nicolea venustula*, *Lumbrinereis fragilis*, *Serpula reversa*, *Thelepus cinnatus*, *Sthenelais limicola*, *Malmgrenia castanea* and *Hermadion pellucidum* dredged 15 miles N.W. of the Bar, *Synchaeta baltica* Ehr. and *Bowerbankia imbricata* off the Isle of Man]. Trans. Liverp. Biol. Soc., vol. v., 1890-91, publ. 1891, pp. 31 and 45-47; reprinted Jan. 1st, 1891, as a separate Report, with pagination altered to 15 and 29-31; pagination again altered to 13 and 27-29, on being reprinted in third vol. of Reports on Fauna of Liverpool Bay, 1892.

W. A. HERDMAN.

Isle of Man, Cheshire, Lanc. S. and W.

List of Papers on the Fauna and Flora of Liverpool Bay published since 1886 as a result of the L.M.B.C. investigations. Appendix B to fourth Ann. Report of the Liverpool Marine Biological Station on Puffin Island, Jan. 1st, 1891, pp. 46-51; reprinted in Trans. Liverp. Biol. Soc., vol. v., 1890-91, publ. 1891, pagination altered to 62-67; reprinted in third vol. of Reports on Fauna of Liverpool Bay, 1892, pagination again altered to 44-49.

W. A. HERDMAN.

Cheshire.

Fifth Annual Report of the Liverpool Marine Biological Station now on Puffin Island [also noting *Siphonostomum*, *Amphiporus lactifloreus*, *Cellaria fistulosa*, *Cellepora avicularis*, *Bowerbankia pustulosa* for Hilbre Island]. Separate Report, 1892, pp. 23-24; reprinted in Trans. Liverp. Biol. Soc., vol. vi., 1891-2, publ. 1892, pp. 30-1; and in vol. iii. of Reports on Fauna of Liverpool Bay, 1892, pp. 21-2.

- H. H. HIGGINS. Lanc. S., Cheshire.
Pioneers in Local Biology [giving Bibliographical Notes of Work done in the investigation of the Fauna of Liverpool Bay]. First Report on Fauna of Liverpool Bay, 1886, pp. 16-31.
- A. H. HIGNETT. Cheshire.
Notholca acuminata [is common in several ponds in the vicinity of Chester; details given]. Sci. Goss., July 1891, p. 164.
- JAMES HORNELL. Isle of Man, Cheshire, Lanc. S.
Report on the Polychæteous Annelids of the L[iverpool].M.B.C. District [enumerating 88 species and two varieties, with copious annotations and remarks; at the end of the paper is given a tabulation of the geographical and bathymetrical range of the local forms; 33 occur in the central area, 30 off the Isle of Man, 33 in Lancashire and Cheshire, nine at Hilbre Island, while 17 are entirely restricted to the Welsh portion of the district]. Trans. Liverp. Biol. Soc., vol. v., 1890-91, publ. 1891, pp. 223-268, and plates 13-15; reprinted in vol. iii. of Reports on Fauna of Liverpool Bay, 1892, with pagination altered to 126-171.
- C. T. HUDSON and P. H. GOSSE. York S.W., Cheshire, Lanc. S.
The Rotifera; | or | Wheel-Animalcules. | . . | . . | . . | In Two Volumes—Volume I. | with Illustrations. | London: | Longmans, Green, and Co. | 1886. | All rights reserved. [4to, pp. viii. + 128; at p. 37 we read of *Pedalion mirum*, that 'It has been met with several times near Chester . . . and on one occasion it was tolerably abundant in the warm water-lily tank in the Duke of Westminster's gardens at Eaton'. . . Volume II. [pp. iv. + 144; the north-country records are:—*Proales decipiens*, Ehrenb. (p. 36), *Furcularia gracilis* Ehrenb. (p. 42), *Mastigocerca stylata* Gosse (p. 64), and *Anuræa hypelasma* Gosse (p. 123), all for 'Stapleton Park, Yorkshire'; *Proales gibba* Ehrenb. for 'Stapleton, Yorkshire,' (p. 37); *Pedalion mirum* (p. 133) for 'warm water-lily tank in the Duke of Westminster's garden at Eaton, and ponds in the neighbourhood of Chester (Mr. Thos. Shepheard): very rare'; and a statement at p. 110 that 'Very recently specimens of what I suppose is *M[onura]. dulcis*, Ehr., have been sent me, from fresh water, by Mr. Lord of Rawtenstall'].
- C. T. HUDSON. Lanc. S.
Supplement | to | the Rotifera: | or | Wheel-Animalcules. | [quarto, 1889, pp. viii. + 64 and plates 31—34; at p. 36 *Stephanops tripus* Hudson, from a ditch containing *Anacharis* (Lord) presumably at Rawtenstall; and at p. 56 *Notholca heptodon* Perty, found at Rochdale by T. Smithson Spencer; are noted].
- J. M. JEFFCOTT. Isle of Man.
Address of the Retiring President [mentions a four-foot Marine Annelid not named, caught in Castletown Bay]. Yn Lioar Manninagh, Ap. 1889, p. 58.
- P. M. C. KERMODE. Isle of Man.
Address by the Retiring President . . . Delivered . . . March 11th, 1886 [gives titles of papers dealing with the Manx Fauna]. Back Trans. I. of Man N.H.S., p. 71; publ. with Yn Lioar Manninagh, Oct. 1889.
- H. WALLIS KEW. Linc. N.
A Half-Day's Ramble on the Lincolnshire Coast [at Mablethorpe, Ap. 3rd, 1886; *Flustra foliacea* noted]. Nat., June 1886, p. 172.
- J. M. KIRK. York S.W.
Microscopic Life at Askern, May 20th, 1886 [included *Hydatina senta*, *Lepadella emarginata*, *Lindia torulosa*, and *Rotifer vulgaris*]. Nat., July 1886, p. 213.
- J. M. KIRK. York N.E.
[Floscularia cornuta noted by] Yorkshire Naturalists at Gormire Lake and Thirkleby Park [in 1887]. Nat., Aug. 1887, p. 241.

- J. M. KIRK. York S.W.
[Rotatoria noted by] The Yorkshire Naturalists' Union at Hatfield
 Chace [21st Sep. 1887; *Rotifer vulgaris*, *Diglena lacustris*, *Hydatina senta*,
Lindia torulosa, and *Anuraea curvicornis*]. Nat., March 1888, p. 89.
- J. M. KIRK. York Mid W.
[Rotatoria noted by] The Yorkshire Naturalists' Union at Harrogate
 [13th July, 1889; *Hydatina senta*, *Diglena lacustris*, and *Pterodina patina*].
 Nat., Aug. 1889, p. 244.
- J. M. KIRK. York N.W.
Micro-Fauna and Micro-Flora of Upper Teesdale, September 1889
 [gatherings made at three stations on the Yorkshire side, Sep. 24th, 1889, by
 E. P. Knubley, contained of Rotifers, *Pterodina patina*, *Diglena lacustris*,
Scaridium longicaudum, *Rotifer vulgaris*, *Euchlanis triquetra*, and *Notommata*
hyptopus]. Nat., Oct. 1889, p. 292.
- J. M. KIRK. York S.E.
[Rotatoria noted by] The Yorkshire Naturalists' Union at Kirkham
 Abbey and Acklam Brow [4th Sep., 1889; *Floscularia ornata*, *Stephanoceros*
eichornii, *Pterodina patina*, *Lindia torulosa*, *Diglena lacustris*, *Melicerta*
ringens, *Rotifer vulgaris*, *Hydatina senta*, and *Megalotrocha flavicans*]. Nat.,
 Nov. 1899, p. 343.
- J. M. KIRK. York Mid W.
[Rotifer observed by] the Yorkshire Naturalists' Union at Malham
 [Cove, 11th September, 1890; *Furcularia reinhardtii*]. Nat., June 1891,
 p. 177.
- JOSEPH LOMAS. Isle of Man, Lanc. W. and S., Cheshire.
Report on the Polyzoa of the L[iverpool]. M.B.C. District [giving,
 after a brief introduction, detailed notes on the 98 species which occur, and
 a tabulation of the distribution, whereby it appears that 28 occur on the
 Cheshire coast and at Hilbre Island, 16 on the Lancashire coast from
 Liverpool to Fleetwood, and 84 at the Isle of Man]. First Rep. Fauna of
 Liverpool Bay, 1886, pp. 161-200, and plate 3.
- JOSEPH LOMAS. 'Liverpool Bay.'
Notes on the Structure of Alcyonidium gelatinosum [based on examples
 from the Liverpool Bay M.B.C. District, localities not stated, but habitats
 alluded to]. Proc. Liverp. Biol. Soc., vol. 1, 1886-87, publ. 1887, pp. 29-33,
 and plate 3.
- JOSEPH LOMAS. Isle of Man.
The Bugle Coralline.—Cellaria fistulosa Linn. [its life-history, etc.,
 described; dredged near the Calf of Man, with cylinders quite as large as
 those of *C. sinuosa*]. Research, Aug. 1888, pp. 22-23.
- JOSEPH LOMAS. Cheshire, Isle of Man, Lanc. S. and W.
Second Report on the Polyzoa of the L[iverpool]. M.B.C. District
 [recording *Membranipora flemingii* Busk, *Cellepora pumicosa*, *C. costazii*,
C. armata Hincks, *C. avicularis* Hincks, *C. dichotoma* Hincks, *Mucronella*
peachii, *Scrupocellaria scruposa*, *Crisia cornuta*, *C. eburnea*, *Cellaria fistulosa*,
Diastopora patina, *Hippothoa distans*, *Stomatopora incrassata* Smith, *Mem-*
branipora dumerilii, *M. craticula*, *Schizoporella unicornis* Johnst., *Cellaria*
sinuosa Hass., *Stomatopora johnstoni* Hell., and *Ascopodaria nodosa* Lomas,
 for the Isle of Man, with details, and ending with a tabulation of the
 distribution of all the species known for the region, giving 30 for Hilbre
 Island and Cheshire coast, 20 for Lancashire coast, Liverpool to Fleetwood,
 and 92 for the Isle of Man]. Proc. Liverp. Biol. Soc., vol. 3, 1888-9,
 publ. 1889, pp. 214-224, and wood-cuts; reprinted with pagination altered to
 87-97 in Second Report on Fauna of Liverpool Bay, 1889.

- J. LOMAS. Isle of Man.
[Lepralia edax found at the Isle of Man, new to the Liverpool M.B.C. District, exhibited]. Proc. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, p. xvi.
- C. L. LORD. York S.W.
Microscopic Pond-Life in Winter [at Hook near Goole; *Melicerta* in Sept. 1891; *Floscularia ornata*, *F. cornuta*, *Eosphora aurita*, *Synchaeta tremula*, *Mastigocerca carinata*, *Pterodina patina* and *Colurus deflexus*]. Sci. Goss., May 1892, p. 115.
- J. E. LORD. Lanc. S.
Free-swimming Rotifers [proposing *Colurus navicularis* as name for a rotifer, found presumably at Rawtenstall]. Science Gossip, June 1884, pp. 124-125 and woodcut.
- J. E. LORD. Lanc. S.
Free-swimming Rotifer [objecting to his *Colurus* being called *Lepadella*]. Sci. Goss., Aug. 1884, pp. 187-188.
- J. E. LORD. ? Lanc. S.
A New Rotifer (*Stephanops longispinatus*?) [This form will be described and figured in Hudson and Gosse's new work]. Nat. World, Sep. 1885, p. 167, and woodcut.
- J. E. LORD. Lanc. S.
A Group of Rotifers. Notes on the Genus *Euchlanis* [lengthy account, with inferential or direct reference to a few species occurring near Rawtenstall and Bacup]. Sci. Goss., April 1886, pp. 83-86, and woodcuts.
- J. E. LORD. Lanc. S.
A Group of Rotifers. Notes on the Genus *Colurus* [several species mentioned, and stated to be common in Rossendale; biological notes given, and four species figured]. Sci. Goss., Sep. 1886, pp. 195-197, and woodcuts.
- J. E. LORD. Lanc. S.
Notes on the Rotifera. (A Prolific Pond.) [at or near Rawtenstall, which yielded 45 species of Rotifers, besides diatoms, algæ, confervæ, infusoria, entomostraca, and *Hydra vulgaris*; the species of Rotifers, and genera of other groups named]. Sci. Goss., Aug. 1887, pp. 185-6.
- J. E. LORD. Lanc. S.
Notes on the Rotifera (*Notholca scapha*) [with woodcut; notes on its occurrence at Rawtenstall, habits, etc.]. Sci. Goss., Dec. 1887, pp. 267-8.
- J. E. LORD. Lanc. S.
The Statoblasts of the Polyzoa [and on the occurrence of *Plumatella repens* at Rawtenstall, the only polyzoon the writer has found there]. Sci. Goss., Dec. 1887, p. 281.
- J. E. LORD. Lanc. S.
Notes on Rotifers. The Genus *Distyla*: class Rotifera [with figures, brief descriptions, and notes on life-history of two new species, *Cathypna gassei* Lord, and *C. hudsoni* Lord, both from the historical 'prolific pond' at Rawtenstall; habitat now destroyed by bleach-works]. Sci. Goss., Sep. 1890, pp. 201-202, and figs. 115, 116.
- J. E. LORD. Lanc. S.
Rossendale Rhizopods, No. 2 [includes notices of *Rotifer vulgaris* and *Philodina erythrophthalma*, with notices of habitat, etc.]. Sci. Goss., April 1891, pp. 84-86, and fig. 59-70; with erratum, May 1891, p. 114.
- J. E. LORD. Lanc. S.
A New Rotifer [described and figured, as *Elosa worrallii* Lord, from a moorland boggy pool, 1,200 ft. above sea-level, in Rossendale]. Internat. Journ. Micros., Nov. 1891, pp. 323-325, and plate 19.

- J. E. LORD. Lanc. S.
Notes on the Collection and Examination of "Pond-Life" [general directions, with notes of the occurrence at Rawtenstall, of *Philodina roseola*, *Ph. citrina*, *Rotifer vulgaris*, *Ph. erythothalma*, *Hydatina senta*, *Notommata aurita*, and *Notholca scapha*]. Internat. Journ. of Microsc., July 1892, pp. 170-180.
- R. T. MANSON. Durham.
Zig-Zag Ramblings by a Naturalist [around Darlington; notes anent *Hæmopsis sanguisuga*, which is common, and *Hirudo medicinalis*, which only occurs in a pond near Twinsburn, near Heighington (p. 24)]. Small 8vo., 159 pages. Darlington, 1884.
- WM. NARRAMORE. Lanc. S.
Vaucheria and a parasitic Rotiferon [figured, and described at great length; the Rotiferon considered to be *Notommata werneckii*; from Leeds and Liverpool Canal near Kirkby]. Research, March 1890, pp. 195-199.
- J. I. NEWTON. Lanc. S.
Rambles during the Year 1887.—Ashton-under-Lyne [30th July; *Stephanoceros eichornii*, *Floscularia cornuta*, *Brachiona pala*, noted in ponds on Ashton Moss]. Ann. Rep. Manch. Microscop. Soc. for 1887, pub. 1888, pp. 66-7.
- C. PARKINSON. York N.E.
Hunting for Zoophytes [in Cornwall, with incidental note that *Beania mirabilis* was discovered on a *Cellularia* at Scarborough]. Sci. Goss., Nov. 1891, p. 249.
- CHARLES ROBSON. Northumberland.
Natural History Jottings. . . . **Earthworms** [*Lumbricus*] feed. Sci. Goss., Oct. 1885, pp. 230-1.
- M. H. ROBSON.
Additions to the Local Fauna and Flora, with Remarks on some New Habitats, etc. [*Alcyonella stagnorum* noted as new to the Northumbrian fauna, found at Benwell Bank Top, Sep. 1878, and on the Nuns Moor, near Fenham Gates, in 1881 (Editorial note states that it was discovered more than fifty years ago at Embleton, Northumberland, and gives bibliographical details); *Paludicella procumbens* noted as obtained in 1878 from the old habitat in Broomley Lough]. N. H. Trans. Northumb., Durham and Newc., viii. 185-189 (pub. 1884).
- M. H. ROBSON. ? Northumberland.
On the Occurrence of a Thread-Spinning Annelid [presumably at Newcastle-on-Tyne; figured but not named]. Sci. Goss., July 1886, pp. 152-3, and woodcut.
- THOS. ROGERS. Lanc. S.
[A form of Plumatella repens which Allman describes as a somewhat unusual one, found in water of artificially raised temperature in canals near Manchester and at Burnley, in which *Planorbis dilatatus* is found]. J. of Conch., July 1887, p. 219.
- THOS. SHEPHEARD. Cheshire.
Paludicella ehrenbergi [its life-history, etc., as observed in the canal near Chester]. Nat., June 1885, p. 262.
- THOMAS SHEPHEARD. Cheshire.
Note on Spongilla, etc. [two polyzoa—*Fredericella sultana* and *Alcyonella fungosa*, and a rare worm (*Pteridonais*) called the 'Polite Worm' from its habit of constantly nodding]. Nat., Aug. 1885, p. 309.
- THOMAS SHEPHEARD. Cheshire.
Note on [the Hybernaculum of] Paludicella Ehrenbergi [as observed presumably at Chester]. Nat., Feb. 1888, p. 51.

THOS. SHEPHEARD.

Cheshire.

The Development of the Fresh-water Polyzoa [in the canal near Chester; the notes refer to *Lophopus crystallinus*, *Alcyonella fungosa*, *Fredericella sultana*, *Cristatella mucedo*, and *Paludicella ehrenbergii*, and four woodcuts are given]. Sci. Goss., May 1888, pp. 107-109; and erratum, June 1888, p. 139.

T. S[HEPHEARD].

Cheshire.

Pond-Life [in the Canal near Chester Lunatic Asylum: very rich in rotifers and polyzoa: *Lacinularia socialis* occurs]. Research, Sep. 1888, p. 46.

THOMAS STEPHENSON.

York N.E.

Fish-Notes from Whitby [a Sun-fish, caught Sep. 22nd, 1887, had on its side two parasites, pronounced *Tristoma coccineum* by Dr. Day]. Nat., Dec. 1887, p. 354.

M. H. STILES.

York S.W.

[Rotifer observed by] **Yorkshire Naturalists at Askern** [15th June, 1893: *Monostyla quadridentata*]. Nat., Oct. 1893, p. 293.

GEORGE SWAINSON.

Isle of Man.

On the Dalby Rocks [Isle of Man; list of captures in August, 1888; *Othonia fabricii*, *O. johnstoni*, *Flemingia plumosa*, *Carinella linearis*, *Sagitta bipunctata*, *Polynoë squamata*, *Nereis pelagica*, *N. viridis*, *Terebella conchilegia*, *Spirorbis borealis*, *S. communis*, *Serpula contortuplicata*, *Eunice pinnata*, *Flustra foliacea*, *Membranipora pilosa*, *M. membranacea*, *Lepralia foliacea*, *Bugula avicularia*, *Vesicularia spinosa*, *Mucronella coccinea*, *Idmonea serpens*, *Schizoporella hyalina*, *Amathia lendigera*, and *Scrupocellaria reptans* enumerated]. Wesl. Nat., Nov. 1888, pp. 267-268.

GEORGE SWAINSON.

Lanc. W.

Saunterings along the Coast. I.—Ribble Estuary [between Lytham and St. Annes, in March; *Nereis pelagica* and *Flustra foliacea* noted]. Wesl. Nat., Sep. 1888, p. 206.

GEORGE SWAINSON.

Lanc. W.

Saunterings along the Coast. II.—Blackpool ['Sea Centipede' (? = *Nereis pelagica*, see Mr. Swainson's note in Sept. No.); *Pectinaria belgica*, *Terebella conchilegia* and *Pedicellina* noted]. Wesl. Nat., Oct. 1888, pp. 231-232.

G. SWAINSON.

Isle of Man.

Results of Dredging Excursion to Dalby, Aug. 1888 [enumerating 13 species of *Othonia*, *Flemingia*, *Carinella*, *Sagitta*, *Polynoë*, *Nereis*, *Terebella*, *Spirorbis*, *Serpula*, and *Eunice*, and of Polyzoa, 11 species of *Flustra*, *Membranipora*, *Lepralia*, *Bugula*, *Vesicularia*, *Mucronella*, *Idmonea*, *Schizoporella*, *Amathia*, and *Scrupocellaria*]. Vannin Lioar, Jan. 1889, p. 14.

GEORGE SWAINSON.

Isle of Man.

Some Curious Aquatic Larvæ [noting that the supposed marine annelid *Campontia cruciformis* Johnst., dredged off Spanish Head, Isle of Man, is certainly a Dipterous larva, probably *Thalassomyia frauenfeldi* Schiner]. Brit. Nat., June 15th, 1894, pp. 137-140, with woodcuts.

M. L. SYKES.

Lanc. S.

Rambles during the year 1887.—Worsley [27th Aug.; *Brachionus* and *Stephanoceros eichhornii* noted in ponds]. Ann. Rep. Manch. Microscop. Soc. for 1887, pub. 1888, p. 68.

JOHN TATHAM.

Lanc. S.

The President's Address [noting *Lophopus crystallinus* at Gorton, Ap. 10th, 1880]. Ann. Rep. Manch. Micros. Soc. for 1884-85, pub. 1885, p. xvi.

THOMAS THOMPSON.

Durham.

Travels of the Earthworm [(*Lumbricus*, species not stated); at Winlaton; description of tracks and locality]. Field, Dec. 14th, 1889, p. 862.

Mar. 1895.

W. BARWELL TURNER.

York S.E.

[Marine Polyzoa noted by] The Yorkshire Naturalists' Union at Spurn Point [3rd Sep., 1884: *Cellepora pumicosa*, *Tubulipora patina*, *Diastopora obelia*, *Crisia aculeata*, *Crisidia cornuta*, *Gemellaria loricata*, *Flustra foliacea*, *F. chartacea*, *Carbasea papyracea*, *Membranipora pilosa*, *M. membranacea*, and *Amathia lendigera*]. Nat., Nov. 1884, p. 93.

J. STANLEY TUTE.

York Mid W.

Microscopic Fauna and Flora of Markington, Mid-West Yorkshire [*Floscularia ornata*, *Rotifer vulgaris*, *Squamella oblonga*, *Pterodina patina*, *Anuraea curvicornis*, and *Notommata centrura* enumerated, with localities]. Nat., May 1890, pp. 151-152.

GEORGE ROBERT VINE.

Linc. N., York N.E.

Notes on Polyzoa found at Cleethorpes in 1875, 1879, and 1882 [being a full and detailed list of 25 species; and record of *Cellaria fistulosa* as having been sent from Scarborough as *Salicornaria farciminoidea* Johnst.]. Nat., Jan. 1892, pp. 5-11.

C. H. H. WALKER.

Isle of Man.

Tiding at Eastertide [in the Isle of Man; *Nereis pelagica* noted]. Young Nat., Nov. 1890, pp. 216-220.

MISS E. A. WAREHAM.

Cheshire.

[Exhibition of Pteridonais found by T. Shepheard in a canal near Chester, Aug. 1882 and Oct. 3rd, 1890]. Proc. Liverp. Biol. Soc., vol. v., 1890-91, publ. 1891, p. ix.

GEORGE WILKS.

Isle of Man.

[*Spirorbis nautiloides* on *Fucus serratus* on the rocks in Douglas Bay]. Ann. Rep. Manch. Microsc. Soc. for 1885 (pub. 1886), p. 5.

W. H. YOUNDALE.

Cumberland.

[*Flustra chartacea* found at] Silloth in August [1891, but not in abundance]. Sci. Goss., Jan. 1892, p. 15.

NOTE—ORNITHOLOGY.

Sparrows Hawking for Crane-flies.—Whilst giving a museum lecture on 'Injurious Insects' in the middle of January, I had occasion to tell of the help to farmers of the Sparrow in catching Daddy-long-legs (*Tipula*) whose grubs—leather jackets—are so destructive to grass. After the lecture a discussion was raised on the subject. This beneficial habit of the Sparrow has been so long known to me that I had come to think that everybody knew it, until I heard that the bird did not even receive credit for it. I had excellent opportunities of seeing these birds on several occasions, when studying grass insects at work in Cumberland, and more recently on Woodhouse Moor, Leeds, I have been near enough to recognise the insect after capture. The Sparrow hovers over the grass—hawk-like—and then darts down into the shorter and thicker grass, returning often with a captured insect still protruding from its bill.—HENRY CROWTHER, The Museum, Leeds, January, 1895.

NOTES—LEPIDOPTERA.

Fidonia pinetaria at Scarborough.—Mr. Reginald H. Barker, of Scarborough, recently sent me for examination a specimen of *Fidonia pinetaria* which he took last year in Raincliff Wood, near that town. This is a very good and interesting addition to the list of Yorkshire Lepidoptera.—GEO. T. PORRITT, Crosland Hall, Huddersfield, February 14th, 1895.

Peronea ferrugana and Dicrorampha herbosana at Huddersfield.—When collecting in the Black Fir Wood, on the evening of March 24th last, I found hibernated specimens of *Peronea ferrugana* in plenty on the leafless birches, and *Dicrorampha herbosana* is not uncommon in the Netherton Wood, near my house. Neither species has previously been recorded for the Huddersfield district.—GEO. T. PORRITT, Crosland Hall, Huddersfield, February 14th, 1895.

Naturalist,

EDIBLE AND POISONOUS FUNGI.

Edible | and | Poisonous Mushrooms: | What to Eat and what to Avoid. |
 By | M. C. Cooke, M.A., LL.D., | . . | . . | with eighteen coloured
 plates | illustrating forty-eight species. | . . . | . . . | London: | Society
 for Promoting Christian Knowledge, | . . | . . | . . | 1894. [Small 8vo.,
 pp. 126.]

There has recently been published by the Society for Promoting Christian Knowledge a useful little book on Edible and Poisonous Fungi, written by Dr. M. C. Cooke. The aim of the book is to impart such information as will enable those who are wishful to obtain some knowledge of a few of the more prominent species of British Fungi, particularly those which are edible and those which are poisonous or dangerous. To make this aim more certain coloured figures are added of all the species dealt with in the text; these, taken in conjunction with the written descriptions, which, by the way, are quite free from technicalities, will prevent the possibility of any error being made by an ordinarily careful observer. The use of this book and a little practice in the field will soon make the collector familiar with both the edible species and those which must be discarded. The plates containing the figures are distributed throughout the work in convenient places for reference, which is a decided advantage. There is a very good array of edible species, including nearly all the best and most easily obtainable.

One can speak from personal experience of the dainty dishes it is possible to prepare from those recommended. Every season great quantities of fungi good for food are allowed to decay away and be lost simply for want of a little easily-obtainable knowledge respecting their esculent qualities.

'The writer once heard an eater of edible toadstools remark that 'he couldn't see much fun in spending a hour or two seeking a mushroom when he could fill a basket in five minutes with others quite as good or even better.'

Referring to the 'get up' of the book throughout we cannot speak too highly, it reflects the highest credit on both publisher and printer. It has a smart appearance, quite up to the times; the paper is good, the type suitable, and the illustrations, not by any means the least difficult to manage, taken as a whole will compare favourably with anything that has yet been produced in this country in that line; little fault can be found except in the shading in two or three cases. For instance, the gills of *Clitopilus orcella* are too dark; *Cantharellus cibarius* is too brown, the fungus when growing being a bright yolk-of-egg yellow. These little defects notwithstanding, it is worthy a place in the best natural history or any other library. The price is very reasonable and within the reach of everybody.—C. CROSSLAND.

NOTE—MAMMALIA.

Whale at Maughold, Isle of Man.—A somewhat rare species of *Delphinidae* has been stranded on the Maughold beach, in a little bay south of the rugged and precipitous cliffs of Maughold Head. It is evidently *Hyperoodon*, but I am not quite clear as to the species. The dorsal fin was unfortunately hacked away or mauled out by carrion crows before I had an opportunity of seeing it. Mr. Kermode calls it *H. butzkopf*. It measures close on 21 feet from lip to corner of tail-lobe, and just over 20 feet to central end of tail, the greatest circumference being 9 feet 4 inches. The colour is dark grey in the upper portions, rather paler beneath. I found no traces of teeth, and did not feel justified in cutting into the jaws to search for traces of dental development. When the creature is skeletonised it will be possible to speak more definitely on several points. I hope something may be done to preserve the skeleton.—WM. SPIERS, M.A., F.G.S., F.R.M.S., Ramsey, Jan. 14th, 1895.

NOTE—BOTANY.

Bekansgill : A Place-Name of Botanical Derivation.—The ancient name of the valley in which Furness Abbey is situate was Bekansghyll, on account of the abundance of some plant called Began. In the opinion of Dugdale, and West, the Furness historian, the species intended was *Atropa*, and from this the valley obtained its poetical designation of 'Vale of Nightshade.' But the statement in the Coucher Book of Furness, quoted by Dugdale and West, seems to have been more neglected than necessary. In the *Barrow Herald* 'A Local Antiquary' has for some time issued translations from the Coucher Book, and on January 5th last appeared the metrical preface in which the verses occur:—'Hæc vallis tenuit olim sibi nomen ab herba Began, qua viruit dulcis nunc tunc acerba. Inde Domus nomen 'Bekansgill' claruit ante.' ('This valley took its name a long time ago from the herb 'Began' (the Bittersweet) which grew in it, and hence the name of the house Bekansgill was formerly famous.') The 'Antiquary' rightly determines the plant as *Solanum dulcamara* L., the *Amara dulcis* and 'Bitterswete' of Turner's Herbal. It seems a pity that good work like these papers should be buried—to most of us—in a country newspaper. How many botanists are likely to even hear of them is idle to speculate. However, the 'Herba Began' is undoubtedly *Solanum dulcamara*, and takes the record (in MS.) back to 1412 at Furness Abbey.—LISTER PETTY, Ulverston, February 19th, 1895.

NOTES AND NEWS.

The Hull Geological Society has taken a new departure in publishing its Transactions, the first part of which is now before us, and affords pleasing evidence of activity in that part of Yorkshire which the Society has taken for its study. In the Report of the East Riding Boulder Committee we note that systematic work has been secured by dividing the district on the Ordnance map into areas of four square miles each, which have been assigned to the several members. The remaining pages are devoted to reports of excursions and abstracts of papers read before the Society. One of the latter, by Mr. W. Stevenson on the old buried oak-forest of Hull, is illustrated by a plate which serves as frontispiece to the volume.

We should like to draw special attention to the movement now on foot for a new English Dialect Dictionary, of which Dr. Joseph Wright, M.A., of Oxford, is Editor-in-Chief, and for which he is seeking to establish a close net-work of assistants all over the country. What is required of the assistants is the examination of dialect works, and the writing out of the information in detail on 'slips,' and all who wish to co-operate should place themselves in communication with Prof. Joseph Wright, at 6, Norham Road, Oxford. The labours of some 200 or 300 additional assistants would enable the work itself to be so far advanced as to admit of its immediate publication. More important than this bibliographical drudgery is the supplying of direct information from original sources, which it is hoped that all who have acquaintance with dialectic peculiarities will supply.

LEPIDOPTERA AT SKIPWITH IN 1894.

REV. CYRIL D. ASH, B.A.,

Vicar of Skipwith, East Yorkshire.

THE worst season for collecting lepidoptera that has been experienced for years.' This is the complaint from almost all parts of the country. Under these circumstances I was, perhaps, fortunate in having to work a locality quite new to me, and apparently very little worked of late years. I now send a brief record of the year's work, and a list of the species observed. The district worked consists mainly of Skipwith Common, a large open heath, with the usual moorland flora and small patches of Scotch firs and birches, and the Holly Carrs, an ornamental wood on the edge of Escrick Park. The spring collecting was a sad failure, owing to the almost unbroken spell of cold nights, which ruined the sallow-collecting, and made larva-searching a blank. In June things improved slightly, and some species were abundant at flowers, notably *Chærocampa porcellus* at rhododendrons, and *Abrostola urticæ* at garden rocket. Sugar was a failure till the middle of July, when several common species turned up in numbers, especially *Noctua augur* and *Xylophasia polyodon*, but of the latter only two melanic specimens were seen. Sugar continued to be productive during August, but the ragwort bloom proved a greater attraction, moths swarming on some nights, notably *Noctua umbrosa*, of which almost any number might have been taken, while *N. xanthographa* was nearly as common; perhaps the most interesting capture being a fine *Apamea fibrosa*. In all 22 species were taken at these flowers. Larva-beating and sweeping in August and September was fairly productive, the birches yielding *Platypteryx falcula* and *Notodonta dromedarius* in plenty, with about a dozen *N. dictæoides* and a few *Acronycta leporina*, the Geometræ being represented by *Ennomos tiliaria*, *Amphidasys betularia*, *Odontopera bidentata* and *Cabera pusaria*. On the heaths larvæ of *Bombyx rubi* swarmed, *Saturnia carpini* were scarce, and *Anarta myrtilli* and *Eupithecia minutata* were abundant; several other Geometræ were swept, but have not yet been identified. The sallows yielded *Dicranura furcula* (1), *Notodonta ziczac* (2), and a few common Geometræ. The autumnal species turned up in great numbers at sugar. I never remember seeing *Cerastis spadicea* in such abundance; on one night there were over 70 specimens on two small trees. *C. vaccinii* was less plentiful, but *Miselia oxyacanthæ*, *Phlogophora meticulosa*, and *Scopelosoma*

satellitæ all swarmed, as did also *Anchocelis litura*; but *A. pistacina* was very scarce, and no others of the genus turned up. *Calocampa exoletæ* was also fairly common, and continued to put in an appearance till Nov. 11th. My last night's sugaring was on Nov. 20th.

The most noteworthy point, as regards the macro-lepidoptera, was the early appearance of *Anarta myrtilli*, of which I found a good specimen, at rest on heather, on April 21st. The insect continued out till June, by which time only an occasional wasted specimen was to be seen. But on July 14th it was out again in splendid condition, and was fairly abundant right through the month; small larvæ being obtainable at the same time. The following lists will give further details of the various species.

Among the micro-lepidoptera I have done comparatively little, as my time was pretty well taken up with the macros, though I noted all that came in my way. I append a list of the species taken, with localities. Next season I hope to give a better account of this group.

Altogether the species recorded this year are — macros 219, micros 127, making a total, of all orders, 346 species.

RHOPALOCERA, 14 SPECIES.

Pieris brassicæ. **P. rapæ.** **P. napi.** All abundant everywhere.

Anthocharis cardamines. Generally distributed; females rather scarce.

Vanessa urticæ. Common in all stages.

Vanessa atalanta. Fairly common.

Vanessa cardui. Two specimens only, both on the Common.

Satyrus janira. Plentiful in meadows and on roadsides, but no varieties.

Satyrus tithonus. Two specimens only.

Satyrus hyperanthus. Scarce.

Chortobius pamphilus. Extremely abundant on the Common.

Polyommatus phlœas. Both broods abundant and generally distributed.

Lycæna alexis. Common on grassy roadsides on edge of Common, some of the females being strongly marked with blue.

Hesperia sylvanus. A few near Blackwood.

NOCTURNI, 20 SPECIES.

Smerinthus populi. A few larvæ taken from willows on Common.

Chærocampa porcellus. Very abundant at flowers of Rhododendron in June; Skipwith.

- Macroglossa stellatarum.** One specimen only ; Skipwith.
- Hepialus hectus.** Common in Holly Carrs Wood.
- Hepialus lupulinus.** Common everywhere.
- Hepialus sylvinus.** A few on Skipwith Common at dusk.
- Hepialus velleda.** Two specimens ; Skipwith.
- Hepialus humuli.** Fairly common everywhere.
- Lithosia mesomella.** Skipwith Common ; scarce.
- Euthemonia russula.** Skipwith Common ; by no means common this year.
- Chelonia caja.** Abundant in larval stage, but no varieties were bred.
- Arctia lubricipeda.** Larvæ fairly numerous, but very few imagines.
- Arctia menthastri.** Both imago and larva common everywhere.
- Liparis auriflua.** Abundant everywhere.
- Orgyia antiqua.** Abundant everywhere.
- Trichiura cratægi.** One larva (Skipwith) produced a crippled male with dark band similar to Lincolnshire specimens.
- Bombyx rubi.** Larvæ excessively abundant on Skipwith Common in autumn ; the imago had been decidedly scarce in the spring.
- Bombyx quercus.** Fairly abundant in larval stage, but very few imagines seen.
- Odonestis potatoria.** Larvæ abundant.
- Saturnia carpini.** Neither imago nor larva was common this year, though a few specimens of both were taken on the Common, Skipwith.

GEOMETRÆ, 79 SPECIES.

- Urapteryx sambucata.** Very common ; Skipwith.
- Epione apiciaria.** Two specimens only ; Skipwith.
- Rumia cratægata.** Common everywhere.
- Metrocampa margaritata.** Common ; Skipwith ; Holly Carrs.
- Selenia illunaria.** Both broods abundant ; Skipwith.
- Odontopera bidentata.** Imago and larva fairly common ; Skipwith.
- Crocallis elinguararia.** One specimen only ; Skipwith.
- Ennomos tiliaria.** Larvæ abundant among birches on Skipwith Common in August.
- Ennomos fuscantaria.** One specimen at light ; Selby.
- Phigalia pilosaria.** Scarce ; Holly Carrs.

Amphidasis betularia. One specimen of var. *doubledayaria* at Skipwith; several larvæ beaten from birches on Common in August.

Boarmia repandata. Scarce; Skipwith and Holly Carrs.

Boarmia rhomboidaria. Common; Skipwith.

Tephrosia biundularia. A few specimens at rest on trees in Blackwood plantation and Holly Carrs.

Geometra papilionaria. Larva beaten from birches; Skipwith Common.

Iodis lactearia. Both imago and larva common and generally distributed.

Eupisteria heparata. Imago common among alders; Holly Carrs.

Acidalia scutulata. Common at Skipwith.

Acidalia bisetata. Common at Skipwith.

Acidalia incanaria. Common in gardens.

Acidalia remutata. Common, Holly Carrs.

Acidalia aversata. Both forms abundant and generally distributed.

Acidalia inornata. A few specimens on Skipwith Common.

Cabera pusaria. Common everywhere.

Cabera exanthemaria. Skipwith Common; not abundant.

Macaria liturata. Fairly common among spruce plantations, Holly Carrs, and larva on Scotch fir, Skipwith Common.

Halia wavaria. Skipwith.

Panagra petraria. Plentiful among bracken on Skipwith Common.

Scodiona belgiaria. Larva; Skipwith Common.

Fidonia atomaria. Swarms on Skipwith Common; a very bright male form occurring with yellow ground colour, also very dark forms.

Fidonia piniaria. Abundant everywhere among firs.

Abraxas grossulariata. Decidedly rare; Skipwith.

Abraxas ulmata. A few specimens only; Holly Carrs.

Lomaspilis marginata. Common; Holly Carrs.

Hybernica rupicapraria. Abundant everywhere.

Hybernica progemmaria. Abundant everywhere; no good vars. noticed.

Hybernica defoliaria. Larvæ plentiful in June; Holly Carrs.

Anisopteryx æscularia. Generally distributed.

Cheimatobia brumata. Abundant everywhere.

Oporabia dilutata. Abundant, Holly Carrs, but no striking forms.

- Larentia didymata.** Abundant everywhere.
- Larentia multistrigaria.** Abundant at willows ; Skipwith.
- Larentia pectinaria.** A few only ; Skipwith.
- Emmelesia albulata.** Common in meadows where food-plant grows.
- Eupithecia subfulvata.** At ragwort flowers ; Skipwith.
- Eupithecia pygmæata.** In damp meadow, Skipwith ; rare.
- Eupithecia virgaureata.** Skipwith ; rare apparently.
- Eupithecia albipunctata.** A few only ; Holly Carrs.
- Eupithecia nanata.** Very abundant, both imago and larva ; Skipwith Common.
- Eupithecia vulgata.** Abundant everywhere.
- Eupithecia minutata.** Abundant, imago and larva ; Skipwith Common.
- Eupithecia abbreviata.** Holly Carrs.
- Eupithecia rectangulata.** In orchards ; Skipwith.
- Thera variata.** Larva and imago common among firs generally, a very handsome dark-banded form predominates.
- Thera firmata.** Skipwith Common ; rare.
- Hypsipetes ruberata.** Not uncommon ; Holly Carrs.
- Hypsipetes elutata.** Larvæ fairly abundant in willow shoots.
- Melanthia ocellata.** Two specimens ; Skipwith Common.
- Melanippe rivata. M. subtristata. M. montanata. M. fluctuata.** All common.
- Anticlea badiata.** Generally distributed and common.
- Anticlea derivata.** One specimen only ; Skipwith.
- Coremia propugnata.** Holly Carrs ; fairly common.
- Coremia ferrugata. C. unidentaria.** Both generally distributed, but not common.
- Camptogramma bilineata.** Occurs everywhere ; not at all strongly marked.
- Phibalapteryx lignata.** Two specimens ; Skipwith Common.
The food-plant is very abundant.
- Cidaria corylata.** Holly Carrs ; not uncommon.
- Cidaria russata.** Skipwith ; a dull almost black form predominates.
- Cidaria immanata.** Skipwith ; plentiful, mostly rich dark forms.
- Cidaria suffumata.** A few specimens only ; Skipwith.
- Cidaria silaceata.** Amongst Epilobium ; Holly Carrs ; scarce.
- Cidaria testata.** Swarming on Skipwith Common in August and September.

Cidaria fulvata. Plentiful ; Skipwith.

Pelurga comitata. One specimen ; Skipwith.

Eubolia mensuraria. Generally distributed, but not common.

Eubolia palumbaria. Fairly plentiful ; Skipwith Common.

DREPANULÆ, 1 SPECIES.

Platypteryx falcula. Larva and imago abundant ; birches ; Skipwith.

PSEUDO-BOMBYCES, 8 SPECIES.

Dicranura furcula. Larva beaten from willow ; Skipwith.

Dicranura vinula. Cocoons on poplars ; Skipwith.

Pygæra bucephala. Larvæ abundant ; Skipwith.

Notodonta camelina. Larvæ fairly numerous ; Skipwith. All of the green form.

Notodonta dictæoides. Larvæ not uncommon among birches ; Skipwith.

Notodonta dromedarius. Larvæ very plentiful, birches ; Skipwith.

Notodonta ziczac. Apparently rare ; larvæ on willow ; Skipwith.

Diloba cæruleocephala. Abundant generally.

NOCTUÆ, 94 SPECIES.

Thyatira derasa. A few at sugar ; Skipwith.

Thyatira batis. Two or three larvæ on brambles ; Skipwith.

Cymatophora flavicornis. Skipwith Common ; not rare.

Bryophila perla. Skipwith.

Acronycta tridens. A few larvæ ; Skipwith.

Acronycta psi. Abundant everywhere.

Acronycta leporina. A few larvæ beaten from birches ; Skipwith Common.

Acronycta rumicis. A few specimens at sugar, and one or two larvæ ; Skipwith.

Acronycta menyanthidis. One imago, and several larvæ feeding on heather ; Skipwith Common.

Leucania lithargyria. At sugar ; Skipwith.

Leucania impura. At sugar and ragwort flowers ; Skipwith.

Leucania pallens. Abundant everywhere.

Hydræcia nictitans. Fairly plentiful at ragwort flowers ; Skipwith ; four vars. occur, one of them almost identical with the Rannoch form.

Hydræcia petasitis. One specimen ; Skipwith.

Hydræcia micacea. At sugar ; Skipwith.

Xylophasia rurea. Skipwith ; type only.

Xylophasia lithoxylea. At sugar ; Skipwith.

Xylophasia polyodon. Very abundant everywhere, but only two dark forms seen.

Heliophobus popularis. At ragwort flowers ; Skipwith ; not common.

Charæas graminis. One specimen at ragwort flowers ; Skipwith.

Mamestra abjecta. Skipwith.

Mamestra brassicæ. Abundant everywhere.

Mamestra persicariæ. A few at sugar ; Skipwith.

Apamea gemina. Skipwith ; not common.

Apamea unanimitis. Three specimens ; Skipwith.

Apamea fibrosa. One specimen at ragwort flowers ; Skipwith.

Apamea oculea. Abundant, but not very variable ; Skipwith.

Miana strigilis. Abundant at sugar ; nearly all of *æthiops* form.

Miana fasciuncula. Plentiful ; nearly all of the red form.

Miana arcuosa. Skipwith ; rare.

Caradrina cubicularis. At sugar ; Skipwith.

Agrotis suffusa. A few at sugar ; Skipwith.

Agrotis segetum. Common everywhere.

Agrotis exclamationis. Common everywhere.

Agrotis corticea. One specimen at sugar ; Skipwith.

Agrotis nigricans. At sugar and ragwort flowers ; Skipwith.

Agrotis tritici. One specimen at ragwort flowers ; Skipwith.

Agrotis agathina. Skipwith Common ; at heather bloom, rare.

Agrotis porphyrea. Skipwith Common ; abundant.

Triphæna janthina. Skipwith, at light and sugar.

Triphæna orbona. **T. pronuba.** Both common and generally distributed.

Noctua glareosa. A few at heather bloom ; Skipwith Common.

Noctua augur. Abundant ; Skipwith.

Noctua c-nigrum. One at sugar ; Skipwith ; October.

Noctua festiva. A few at sugar ; Skipwith.

Noctua rubi. At sugar ; Skipwith.

Noctua umbrosa. Swarmed at ragwort flowers ; Skipwith.

Noctua baja. At sugar and ragwort flowers ; Skipwith.

Noctua xanthographa. Common in all stages ; Skipwith.

Trachea piniperda. A few at willows, on edge of Skipwith Common.

Tæniocampa gothica. T. rubricosa. T. instabilis. All three abundant at willows ; Skipwith.

Tæniocampa opima. One specimen taken at flowers of *Galium cruciatum* in daylight, and another at rest on heather ; Skipwith.

Tæniocampa populeti. One larva on *Populus nigra* ; Holly Carrs.

Tæniocampa stabilis. Abundant at willows ; Skipwith.

Tæniocampa gracilis and **T. cruda.** A few at willows ; Skipwith.

Orthosia lota. At sugar ; Skipwith. Not common.

Orthosia macilenta. Several at sugar ; Skipwith.

Anchocelis pistacina. Skipwith ; scarce.

Anchocelis litura. Skipwith ; abundant.

Cerastis vaccinii. Fairly abundant ; Skipwith.

Cerastis spadicea. Swarming at sugar in October and November, but remarkably uniform in appearance.

Scopelosoma satellitia. Abundant and variable ; Skipwith.

Xanthia cerago. X. silago. Both bred in numbers from willow catkins, but only one specimen of var. *flavescens* ; Skipwith.

Xanthia ferruginea. Not at all common ; Skipwith.

Cosmia trapezina. Larvæ abundant ; Holly Carrs.

Dianthæcia capsincola. Larvæ plentiful in seed-vessels of *Lychnis vespertina* everywhere.

Dianthæcia cucubali. One specimen at flowers ; Skipwith.

Polia chi. Two specimens only ; Skipwith.

Miselia oxyacanthæ. Very abundant at sugar ; Skipwith ; but var. *capucina* decidedly scarce.

Agriopis aprilina. Apparently scarce ; Skipwith.

Phlogophora meticulosa. Abundant everywhere.

Euplexia lucipara. Fairly abundant ; Skipwith.

Aplecta nebulosa. Holly Carrs ; one specimen.

Hadena proteus. Escrick Park ; one specimen.

Hadena oleracea. Common ; Skipwith.

Hadena pisi. Larva on bracken and whitethorn ; Skipwith.

Xylocampa lithorhiza. At willows ; Skipwith.

- Calocampa vetusta*. One specimen at sugar ; Skipwith.
Calocampa exoleta. Fairly common ; Skipwith.
Anarta myrtili. Larva and imago abundant ; Skipwith Common ;
 apparently a succession of broods from April to August.
Habrostola urticæ. Abundant at flowers ; Skipwith.
Plusia chrysitis. At flowers ; Skipwith.
Plusia iota. *Plusia v-aureum*. Both at flowers ; Skipwith ;
 not common.
Plusia gamma. Abundant everywhere.
Gonoptera libatrix. Sugar ; Skipwith.
Amphipyra tragopogonis. Skipwith ; not common.
Mania typica. Abundant at sugar ; Skipwith.
Euclidia mi. Larvæ on Skipwith Common.

DELTOIDES, 3 SPECIES.

- Hypena proboscidalis*. Common everywhere.
Herminia tarsipennalis. Holly Carrs.
Herminia grisealis. Holly Carrs.

Total Macro-lepidoptera, 219 species.

PYRALIDES, 12 SPECIES.

- Aglossa pinguinalis*. *Hydrocampa stagnalis*. Skipwith.
Botys verticalis. *B. urticalis*. Skipwith.
Ebulea sambucalis. *Pionea forficalis*. Skipwith.
Scopula lutealis. *S. olivalis*. *S. prunalis*. Skipwith.
Scoparia ambigualis. Skipwith.
Scoparia murana. *S. truncicolella*. Skipwith Common.

CRAMBITES, 5 SPECIES.

- Crambus pratellus*. *C. pascuellus*. Skipwith Common.
Crambus tristellus. *C. culmellus*. Skipwith Common.
Phycis carbonariella. Skipwith Common.

TORTRICES, 42 SPECIES.

- Halias prasinana*. Holly Carrs.
Tortrix pyrastrana. *T. rosana*. Skipwith.
Tortrix corylana. Holly Carrs.
Tortrix viburnana. Skipwith Common.
Tortrix viridana. *T. ministrana*. Holly Carrs.
Tortrix adjunctana. Skipwith.
Amphysa gerningana. Skipwith Common.

- Peronea variegana*. Skipwith.
Teras caudana. Holly Carrs.
Dictyopteryx holmiana. *D. bergmanniana*. Skipwith.
Argyrotoza conwayana. Skipwith.
Penthina picana. *P. betulætana*. Skipwith Common.
Penthina marginana. Skipwith Common.
Spilonota rosæcolana. *S. roborana*. Skipwith.
Sericoris urticana. Holly Carrs.
Sciaphila virgaureana. Skipwith Common.
Capua ochraceana. Holly Carrs.
Bactra lanceolana. Skipwith Common.
Phoxopteryx unguicana. *P. lundana*. Skipwith Common.
Grapholitha paykulliana. Skipwith Common.
Pædisca solandriana. Skipwith Common.
Ephippiphora bimaculana. *E. scutulana*. Skipwith Common.
Coccyx argyrana. *C. hyrciniana*. Holly Carrs.
Retinia buoliana. *R. pinivorana*. Skipwith Common.
Stigmonota internana. *Catoptria ulicetana*. Skipwith.
Xylopoda fabriciana. Skipwith.
Eupœcilia nana. *E. maculosana*. Holly Carrs.
Eupœcilia hybridellana. *E. angustana*. Holly Carrs.
Cochylis stramineana. Skipwith.
Tortricodes hyemana. Skipwith.

TINEÆ, 63 SPECIES.

- Exapate gelatella*. Skipwith Common.
Diurnea fagella. Common everywhere.
Tinea cloacella. *T. rusticella*. Skipwith.
Tinea tapetzella. *T. lappella*. Skipwith.
Tinea bistrigella. Skipwith Common.
Micropteryx seppella. *M. purpurella*. Skipwith Common.
Nemophora swammerdamella. Holly Carrs.
Nemophora metaxella. Holly Carrs.
Adela degeerella. *A. viridella*. Holly Carrs.
Swammerdamia apicella. *S. pyrella*. Skipwith.
Prays curtisellus var. *rusticus*. Skipwith.
Plutella cruciferarum. Skipwith.
Harpiteryx xylostella. Skipwith.
Phibalocera quercana. Skipwith.

- Depressaria costosa*. *D. assimilella*. Skipwith.
Depressaria applanella. *D. heracleana*. Skipwith.
Gelechia ericetella. *G. proximella*. Skipwith Common.
Gelechia maculea. Skipwith.
Gelechia sangiella. *G. ericinella*. Skipwith Common.
Pleurota bicostella. Skipwith Common.
Dasycera sulphurella. Skipwith.
Æcophora fuscescens. *Æ. pseudospretella*. Skipwith.
Endrosis fenestrella. Skipwith.
Glyphipteryx fuscoviridella. Skipwith Common.
Perittia obscurepunctella. Skipwith Common.
Argyresthia nitidella. *A. curvella*. Skipwith.
Argyresthia gædartaella. *A. brockeella*. Skipwith Common.
Cedestis farinatella. Skipwith Common.
Gracilaria swederella. Holly Carrs.
Gracilaria stigmatella. Skipwith.
Gracilaria elongella. Holly Carrs.
Gracilaria syringella. Skipwith.
Ornix anglicella. Skipwith.
Coleophora albicosta. *C. cespititiella*. Skipwith Common.
Elachista luticomella. *E. obscurella*. Skipwith Common.
Elachista cerusella. Skipwith Common.
Elachista rufocinerea. *E. cygnipennella*. Skipwith.
Tischeria marginea. Skipwith.
Lithocolletis pomifoliella. *L. spinicolella*. Skipwith.
Lithocolletis salicicolella. *L. quercifoliella*. Skipwith.
Lithocolletis alnifoliella. Skipwith.
Lithocolletis cramerella. *L. tenella*. Holly Carrs.
Lyonetia clerckella. *Cemiostoma laburnella*. Skipwith.
Nepticula aurella. Skipwith.

PTEROPHORI, 5 SPECIES.

- Pterophorus acanthodactylus*. Skipwith Common.
Pterophorus fuscodactylus. Skipwith.
Pterophorus lithodactylus. Skipwith Common.
Pterophorus pentadactylus. Skipwith.
Alucita polydactyla. Skipwith.

Total Micro-lepidoptera—127 species.

December 31st, 1894.

Mar. 1895.

NOTES—ORNITHOLOGY.

Little Auks at Redcar.—There has been great mortality amongst Little Auks (*Mergulus alle*) during the gales in January and February. I have tried to ascertain from local taxidermists what number each has had, and I compute the total at not less than 250. I, myself, saw seven washed up on the beach one morning. Instances of its capture are reported on Eston Nab (one of the Cleveland Hills); Swainby; and my friend Col. I'Anson, writes me that he had one which was found on Leeming Lane, between Thirsk and Ripon.—T. H. NELSON Redcar, Feb. 5th, 1895.

Little Auks on the Northern Coast.—Quite a number of these rare little visitants (*Mergulus alle*) have been taken round the North Coast during the recent severe gales and wintry weather. One, which came into my possession last week, was caught alive by two young ladies on the Long Sands at Tynemouth, but died soon after its capture. There were a number of them on the margin of the coast at Whitley, Northumberland, quite close to land, amongst the surf. Some men tried to catch them with dogs, but every time the dogs came near the Little Auks dived under the surf and escaped.—H. T. ARCHER, Newcastle-on-Tyne, Feb. 2nd.

Little Auks near Bradford.—During the recent severe weather there have been quite a number of Little Auks (*Mergulus alle*) in this neighbourhood. Three specimens in the flesh have been seen by the writer. The first of these was caught whilst trying to 'paddle' on the snow at Holmfirth, in the second week of January, and was kept alive for a few days in captivity. It was an immature bird. The second (a mature bird) was killed at Ilkley about a week later. The third I have seen was caught at Great Horton (Bradford) at the end of January, and was a very fine clean adult specimen, proving, on dissection, to be a female. Several other strange birds which I have had described to me no doubt belonged to the same species, by the size and description given. I do not remember hearing of any of this truly oceanic species having visited this district before, and so many coming within one month alone speaks for the severity of the weather we have been experiencing. From the accounts given the birds were trying their best to make the heavy fall of snow a substitute for their native element, as in nearly every case they were described as trying to 'paddle' on the snow.—H. B. BOOTH, Frizinghall, Bradford, Feb. 9th, 1895.

Little Auk in Leeds.—A living specimen of the Little Auk (*Mergulus alle* Linn.) was brought to me on the 3rd January, having been picked up in a field opposite my house the previous day. Attempts had been made to feed it with bread and milk, but with only partial success; and at my suggestion some fish was obtained, but it was apparently too weak to be able to eat it, and on the same afternoon it leaped from a tub of water upon which it was floating, and expired. It appears highly probable that it was blown inland by the severe north-westerly gale of the preceding Saturday, and, therefore, would have been without food for four days at the time that it was picked up, and, I should infer, was too exhausted to eat. At the time when I saw it, it could trot about, very much in the attitude of a penguin, but with the beak less elevated, and its gait was a less pronounced waddle. It was, however, very much disinclined to walk, and when unmolested slid forward on to its breast. It appeared to be a mild and gentle creature, exhibiting no fear or resentment; the only demonstration that it made was to open its beak widely, for food, I suspect, but it may have been intended as a threat or protest.—PERCY F. KENDALL, Chapel-Allerton, Leeds, Jan. 16th, 1895.

Breeding of the Woodcock near Bradford in 1894.—I was investigating a case of the breeding of the Woodcock at Denton, near Ben Rhydding, when I saw Mr. W. Hewett's note under the above heading, in the January number of 'The Naturalist.' Thinking his note might refer to the same pair at Denton, I wrote that gentleman, and now have pleasure in stating that two pairs of these birds nested in this district last season: one in Airedale, and the other in Wharfedale. The pair referred to by Mr. Hewett nested in a small wood near Sutton's mill, about four miles up the valley from Keighley. The eggs were found by two boys early in April, and afterwards passed into the hands of Mr. Jas. Ellison, of Steeton. I believe they are now in the collection of Mr. Massey, at Manchester. The other pair nested in Denton Woods, near Ben Rhydding, and fortunately brought off four young birds.—H. B. BOOTH, Frizinghall, Feb. 9th, 1895.

A CRITICAL CATALOGUE OF LINCOLNSHIRE PLANTS: FROM ALL KNOWN SOURCES.

REV. E. ADRIAN WOODRUFFE-PEACOCK,
*Vicar of Cadney, Brigg; General and Botanical Secretary of the Lincolnshire Naturalists'
Union; Curator of the Lincolnshire County Herbarium.*

SIXTH PAPER.

(First Paper, giving all explanations, Nat., March 1894, pp. 85-92.)

COMPOSITÆ (*continued*).

- Anthemis tinctoria** L.† A garden outcast. Bot. Div. **N.**—2.
Winterton, 1893; Rev. W. Fowler. Between Roxby and
Winteringham, 1892; Miss W. Fowler.
- Anthemis Cotula** L.† Native. Bot. Divs. **N.**—3(3).5.7.11(2).
S.—13.14.
- Anthemis arvensis** L.† Native. Bot. Divs. **N.**—1.2.3.7.8.
S.—13.14.
- ANTHEMIS ANGLICA** Spr. In the Thompsonian *List* for Bot. Div.
N.—12. Boston.
- ANTHEMIS NOBILIS** L. A garden escape? I have records for
Bot. Divs. **N.**—3.7. **S.**—14. But have seen no specimens.
- Chrysanthemum segetum** L.† Native. Record for all Bot.
Divs. except **N.**—4.6.8.9. **S.**—15.17.18.
- Chrysanthemum Leucanthemum** L.† Native. Recorded for
all Bot. Divs. except **N.**—1.4.6.8.11. **S.**—18.
- Chrysanthemum Parthenium** Pers.† An escape or denizen.
Bot. Divs. **N.**—3(2).5.7.9.10.11.12. **S.**—13.14.
- Matricaria inodora** L.† Native. Recorded for all Bot. Divs.
except **N.**—1.4.6. **S.**—15.17.18.
- Matricaria Chamomilla** L.† Native. Bot. Divs. **N.**—1.3.4.5.
11.12. **S.**—16.17.
- Tanacetum vulgare** L.† Native. Recorded for all Bot. Divs.
except **N.**—4.9. **S.**—15.16.17.18.
- ARTEMISIA ABSINTHIUM** L. Native (?) or escape. Recorded in
Blair's *Phar.-Bot.*, 1723, p. 21, for **N.** and **S.** H. C. Watson
saw it in **S.**, but adds 'Introduced?' My notes give Bot. Divs.
N.—7.10(2).12(2). **S.**—16.17. I have never seen a specimen.
- Artemisia vulgaris** L.† Native. Bot. Divs. **N.**—2.3.5.6.7.10.
11.12. **S.**—13.15.
- Artemisia maritima** L. Native. Bot. Divs. along the coast.
N.—4.9.11.12. **S.**—17. Brit. Mus. Herb.

VAR. gallica Willd. Native. Bot. Divs. **N.**—4.12(2). Herb. Brit. Mus.

ARTEMISIA CÆRULESCENS L. Near Boston; by Mr. Totfield. Recorded in W. Hudson's *Flora Anglica*, 1762. I believe this record was originally made through some misreading of Blair's *Phar. Bot.*, 1723, pp. 14-25. 'No other person has ever met with it.'—Sir J. Smith, '*Flora Brit.*'

Tussilago Farfara L.† Native. Recorded for all Bot. Divs. except **N.**—6. **S.**—14.15.18.

Petasites fragrans Presl.† A garden escape and outcast. Bot. Divs. **N.**—3(2).7.11(3).

Petasites vulgaris Desf.† Native. Recorded for all Bot. Divs. except **N.**—4.6.9. **S.**—13.17.18.

Doronicum Pardalianches L.† A garden outcast. Bot. Divs. **N.**—7.11.

Senecio vulgaris L.† Native; and common throughout the county now. Not a Carr and Fen species till cultivation came.

Senecio sylvaticus L.† Native. Bot. Divs. **N.**—1.2.3(3).5(3).7(2).10(3). **S.**—13(3).16.

VAR. lividus Sm.† Native. Bot. Divs. **N.**—5.7.12. **S.**—13.15. Many intermediate forms.

Senecio viscosus L.† Native. Bot. Div. **N.**—9. Mablethorpe, 1893; Miss Rosa J. Owston (F. A. L. and Ar. B.).

Senecio erucifolius L.† Native. Bot. Divs. **N.**—1.3.7.8.11. **S.**—13.14.15.16.

Senecio Jacobæa L.† Native. All Bot. Divs. except **N.**—4. **S.**—18.

VAR. flosculosus Jord. Native. Bot. Div. **N.**—9. Mablethorpe, 1890; J. Burtt Davey. *The Naturalist*, 1891, p. 66. Herb. Brit. Mus.

Senecio aquaticus Huds.† Native. Bot. Divs. **N.**—1.2.3.5.6.7.8.10.12. **S.**—13.

Senecio saracenicus L.† A denizen in one spot. Bot. Div. **S.**—15. Little Ponton, 1880; E. M. Browne.

Senecio paludosus L.† Native, but extinct. The Rev. T. V. Wollaston, of Scotter, is the last person known to have taken a specimen, and that was before 1804, at Braford Water, which divides **N.** 6. and **S.** 13. The County Herb. specimen is from Lincolnshire, and was taken from the collection of John Bogg, the founder of the Bogg Herb., and father of E. B. Bogg and T. W. Bogg, the correspondents of H. C. Watson. Unfortunately it is not localised or dated.

- Senecio palustris** DC. Native but extinct. John Ward recorded it last for the county in G. Weir's *Horncastle*, 1820. There are specimens from Revesby Abbey, circa 1795 ; Sir J. Banks, in the Herb. Brit. Mus. It once certainly flourished in Bot. Divs. **N.**—7.10.12. **S.**—17.18.
- Senecio campestris** DC.† Native and still with us. Bot. Divs. **N.**—4. **S.**—14.15.
- Carlina vulgaris** L.† Native. Bot. Divs. **N.**—2.3.5.8.9.12. **S.**—14.15.
- Arctium Lappa** L. Aggregate common **N.** and **S.**
- Arctium majus** Schk.† Native. Bot. Divs. **N.**—1(2).2(3).6.8(2). **S.**—13.14.15.16.
- VAR. SUBTOMENTOSUM** Lange. Bot. Div. **S.**—16. Deeping. 'Another plant seen near the Cross Drain is perhaps this variety.'—W. H. Beeby, *J. of B.*, 1884, p. 19.
- Arctium minus** Schk.† Native. Bot. Divs. **N.**—2(2).3(2).8.10(2).11.12. **S.**—13.14.16(2).
- Arctium intermedium** Lange. Bot. Div. **N.**—11. Scremby, 1882 ; Rev. W. Fowler, Herb. Brit. Mus.
- Carduus pycnocephalus** Jacq.† Native? Bot. Divs. **N.**—4.6. Cleethorpes,† 1892 ; F. A. Lees. Lincoln,† 1892 ; Rev. R. W. Goodall.
- Carduus nutans** L.† Native. Recorded for all Bot. Divs. except **N.**—4.8. **S.**—18. Very common.
- Carduus crispus** L.† Native. Bot. Divs. **N.**—2.3(2).5(2).6.7.8.10(2).11. **S.**—13.16.
- Carduus polyanthemus** Koch.† Native. Bot. Div. **N.**—3(3). (F. A. Lees).
- Cnicus lanceolatus** Hoffm.† Native. Recorded for all Bot. Divs. except **S.**—14.15.16.18.
- Cnicus eriophorus** Hoffm.† Native. Bot. Divs. **N.**—5.11(2). **S.**—13.14(2).15(3).
- Cnicus palustris** Hoffm.† Native. Recorded for all Bot. Divs. except **N.**—4.6.9. **S.**—14.17.18.
- Cnicus pratensis** Willd.† Native. All Bot. Divs. except **N.**—4.6.8.9.11. **S.**—14.15.16.17.18.
- CNICUS OLERACEUS** L. Alien. Bot. Div. **S.**—16. On road between Market Deeping and Crowland, 1846 ; Mr. Cole. *The Phyt.*, ser. 1, vol. 3, p. 115.
- Cnicus acaulis** Hoffm.† Native. Bot. Divs. **N.**—6.7.8.9.10.11 **S.**—13.15.16.

Cnicus dubius Willd. Native. Bot. Divs. **N.**—5, 9, 10, 11.
S.—13, 15, 16. Herb. Brit. Mus. Probably a hybrid form
 between *acaulis* and *arvensis*.

Cnicus arvensis Hoffm.† Native and universally common.

VAR. setosus Bess.† Alien. Bot. Divs. **N.**—7.10. (F. A. Lees).

CNICUS FORSTERI Sm. (= *palustris* × *pratensis*). Bot. Div. **N.**—7.
 Linwood Warren, 1877 ; F. A. Lees' *Outline Flora*.

Cnicus Burgessii Peacock (= *lanceolatus* × *pratensis*).† Bot.
 Div. **N.**—11. Spilsby, 26-9-'92 ; J. T. Burgess. This seems
 undoubtedly to be the hybrid, though the specimen is poor.
 (Ar. B.).

Onopordon Acanthium L. Alien. Bot. Divs. **N.**—2.3.5.6.12.
S.—13.14.

Silybum Marianum Gærtn.† Alien escape from gardens. Bot.
 Divs. **N.**—3.6.10.12. **S.**—13.14.

Serratula tinctoria L.† Native. Bot. Divs. **N.**—2.5.6.7.8.9.10.
S.—13.15.16.

VAR. monticola Boreau.† Native. Bot. Divs. **N.**—7.9.11. **S.**—13.

Centaurea nigra L.† Native. All Bot. Divs. except **N.**—
 1.4.6.9. **S.**—15.18.

VAR. DECIPIENS Thuill. Bot. Div. **N.**—7. Hatton, 1890 ;
 Mrs. Jarvis.

Centaurea Scabiosa L.† Native. All Bot. Divs. except **N.**—
 4.9. **S.**—17.18.

Centaurea Cyanus L.† Native. Bot. Divs. **N.**—2.3.5.7.10.11.
S.—13.14.15.16.17.

CENTAUREA CALCITRAPA L. Alien. Bot. Div. **N.**—10. Low
 Toynton, 7-'90 ; Rev. J. W. Bayldon. Burgess' *Paintings*
 from this specimen.

Centaurea solstitialis L.† Alien. Bot. Div. **N.**—6. Near
 Lincoln, 7-'92 ; Rev. R. W. Goodall (F. A. Lees). In a corn-
 field.

Centaurea spinosa L. Alien. Bot. Div. **N.**—4. Cleethorpes,
 31-8-'85 ; Rev. H. Friend. Druce Herb., Oxford.

Cichorium Intybus L.† Native. Bot. Divs. **N.**—3(2).5.6(3).
 7(4).10(2).11(3). **S.**—13.15.16.17.

Arnoseris pusilla Gærtn.† Alien. Bot. Divs. **N.**—3.5.6.

Lapsana communis L.† Native and common throughout the
 county.

Picris hieracioides L.† Native. Bot. Divs. **N.**—3.7.8(2).10.
 11(4). **S.**—15(3).16.

- Picris echioides** L.† Native. Bot. Divs. **N.**—2.3.6.7.8.9.10.11. 12. **S.**—13.14.15.16.
- Crepis virens** L.† Native. Bot. Divs. **N.** in all except 1. **S.**—13. Only record.
- Crepis biennis** L.† Native. Bot. Divs. **N.**—7.8.10. **S.**—15.16.
- CREPIS PALUDOSA* Moench. Bot. Div. **N.**—7. Hatton, 1890; Mrs. Jarvis. As all this lady's rare finds have been rightly named, I print this first record on her authority without seeing a specimen. 'Norfolk is said to possess it in one woodland corner.'—F. A. Lees.
- Hieracium Pilosella** L.† Native. All Bot. Divs. except **N.**—1.4.6.8. **S.**—14.15.16.18.
- Hieracium aurantiacum** L.† Alien escape from garden. Bot. Div. **S.**—13. Nocton, 1893; D. Bratt.
- Hieracium vulgatum** Fr.† Native. Bot. Divs. **N.**—8. **S.**—13.15.
- Hieracium umbellatum** L.† Native. Bot. Divs. **N.**—2.5.7.8. 10.11. **S.**—13.14.
- Hieracium boreale** Fr.† Native. Bot. Divs. **N.**—2.8.10(2). **S.**—13(6).14.16.
- Hypochæris radicata** L.† Native. All Bot. Divs. except **N.**—1.2. **S.**—14.17.18.
- Leontodon hirtus** L.† Native. Bot. Divs. **N.**—2.7.8.9.12. **S.**—13.15.16.
- Leontodon hispidus** L.† Native. All Bot. Divs. except **N.**—1.2. **S.**—14.16.18.
- Leontodon autumnalis** L.† Native. Bot. Divs. **N.**—3.5.7.11. 12. **S.**—13.15.16.17.
- Taraxacum officinale** Web.† Native and very common throughout the county.
- Lactuca virosa** L.† Native. Bot. Divs. **N.**—5.6(2).7.9(3).10. **S.**—13.15.
- Lactuca muralis** Fresen.† Native. Bot. Divs. **N.**—2.3. **S.**—17. A very rare plant in Lincolnshire.
- Sonchus oleraceus** L.† Native. Bot. Divs. **N.**—1.2.3.5.7.8.10. 11.12. **S.**—13.17.
- Sonchus asper** Hoffm.† Native. Bot. Divs. **N.**—2.3.7.9. **S.**—13.
- Sonchus arvensis** L.† Native. Bot. Divs. **N.**—3.5.7.8.10.11. 12. **S.**—13.16.17.
- VAR. glabra** Lond. Cat.† (= a form with eglandular inflorescence). Bot. Divs. **N.**—9.11.

VAR. ——— † (= a form absolutely glabrous). Bot. Div. **N.**—3.
Cadney, 1894 ; Peacock. Growing in same dry ditch with the
other three specimens. 'The most extreme form I have seen,
quite simulates *S. maritimus*.'—Ar. Bennett.

SONCHUS PALUSTRIS L. Native, but extinct. Last record
Ar. Young's *Agric. Survey*, 1799. Bot. Div. **N.**—12. I have
no note of a Lincs. specimen.

Tragopogon minus Fries.† Native. The only recorded form
All Bot. Divs. except **N.**—1. **S.**—14.15.18.

Tragopogon porrifolius L.† Alien escape. Bot. Divs. **N.**—3.10.

CAMPANULACEÆ.

Jacione montana L.† Native. Bot. Divs. **N.**—2.7(2).10(2).
S.—13(3).15.

Campanula glomerata L.† Native. Bot. Divs. **N.**—2.5.6.7.8.11.
S.—13.14.15.16.

Campanula Trachelium L.† Native. Bot. Divs. **N.**—2.10.11.
S.—13.15.16.

Campanula latifolia L.† Native. Bot. Divs. **N.**—1.2.7.8.10.11.
S.—13.15.

Campanula ——— Peacock (= *latifolia* × *trachelium*). Bot. Div.
N.—2. Broughton Wood, 1893 ; Rev. E. A. Woodruffe-
Peacock (1894!).

Campanula rapunculoides L.† Alien garden escape. Bot. Divs.
N.—7.10.11. **S.**—14.

Campanula rotundifolia L.† Native. Bot. Divs. **N.**—2.3.5.7.
8.10.11.12. **S.**—13.14.16.

CAMPANULA RAPUNCULUS L. Alien escape. Bot. Div. **N.**—11.
Spilsby, 1881 ; Burgess' *Paintings*.

CAMPANULA PATULA L. Same as last.

Campanula pyramidalis Reichb.† Alien escape. Bot. Div.
N.—10. Woodhall, before 1883 ; Miss Mackinder. Figured
from the same place in the Lane-Claypon *Paintings*.

Campanula speculum L.† Alien with foreign seed-wheat. Bot.
Div. **S.**—13. Near Boultham Moor, 2-7-'62 ; Rev. R. E. G. Cole.

Specularia hybrida DC.† Native. Bot. Divs. **N.**—2.6.7.8.10.11.
S.—13.15.16.

VACCINIACEÆ.

Vaccinium Oxycoccus L.† Native, but now very rare. Bot. Divs.
N.—1.6.7.10.12(2). It is almost extinct, I fear.

[*VACCINIUM MYRTILLUS* L. Never recorded for Lincolnshire. But
it is found practically in our borders, for it still grows in

Wigsley Wood, in the parish of Thorney, on that spur of Nottingham which runs up within five miles of Lincoln city. A diligent search may do for this species what has been done for the next.]

ERICACEÆ.

Andromeda Polifolia L.† Native. Bot. Div. **N.**—1. Epworth, 1893; Sam. Hudson. Confirmed 1894 by the Rev. W. Fowler, who found it at another spot in the same parish.

Calluna Erica DC.† Native. Bot. Divs. **N.**—1.2.3.5.7.10. **S.**—13.14.16.

Erica Tetralix L.† Native. Bot. Divs. **N.**—1.2.3.5.7.10. **S.**—13.

Erica cinerea L.† Native. Bot. Divs. **N.**—2.3.5.7.10. **S.**—13.

Pyrola rotundifolia L. 'In a lane leading through the fir plantations to (Bot. Div. **N.**—5) Laughton Common is a ditch on the left hand, about 100 yards beyond the white gate coming in from Greenhill farm.'—Rev. J. K. Miller, circa 1842. Also in the Miller-Anderson *List*, and so in all subsequent lists. Most likely the next.

Pyrola minor Sw.† Native, but growing rare. Bot. Divs. **N.**—3.7(2).10.12. **S.**—13.

MONOTROPEÆ.

Hypopithys multiflora Scop. Native, but extinct. Bot. Div. **N.**—6. 'Close to Summer Castle, in Fillingham parish, in fir wood.'—Dalton in *Bot. Guide*, 1805.

PLUMBAGINEÆ.

Statice Limonium L.† Native on Humber side and sea-shore. Bot. Divs. **N.**—3.4.9.12. **S.**—17.18.

Statice binervosa G. E. Smith (including *S. intermedia* Syme, and *S. occidentalis* Lloyd).† Native. Bot. Divs. **N.**—4.9.

Statice reticulata Sm.† Native, but extinct, I believe. Bot. Divs. **N.**—12. **S.**—17.

Armeria maritima Willd.† Native. Bot. Divs. **N.**—3.4.9.11.12. **S.**—17.18.

PRIMULACEÆ.

Hottonia palustris L.† Native. All Bot. Divs. except **N.**—4.8. **S.**—15.17.18.

Primula vulgaris Huds.† Native. All Bot. Divs. except **N.**—4.6.9. **S.**—15.17.18.

VAR. FLORE ROSANTE (i.e., 'the liver-coloured variety'). Bot. Divs. **N.**—2(2).7. From the last place—Badger Moor Wood, Wragby—'it remained constant when transplanted.'—Mrs. Jarvis.

PRIMULA ACAULIS Jacq. Bot. Div. **N.**—2. In Broughton Wood, 1893! With rudimentary scape.

Primula caulescens Bab.† Native. Bot. Divs. **N.**—1.2.5.7.8. 10.11. **S.**—13.15.16. This, as well as the last, I believe to be a hybrid between *P. vulgaris* Huds. and *P. veris* L.; it is only found naturally where both grow together. Sometimes both *vulgaris* and *caulescens* flowers are found on one root, as was the case with a sp. in the County Herb. sent in green by the Rev. R. E. G. Cole, from Doddington, Bot. Div. **S.**—13.

Primula veris L.† Native. All Bot. Divs. except **N.**—8. **S.**—15.18.

Cyclamen ficariifolium Sy.† Planted or escaped alien. Bot. Div. **N.**—3. By Cedar trees, near the mausoleum, Brocklesby. John Gerarde's *Herbal*, 1597, says: 'It is reported to me by men of good credit that Cyclamen, or Sowbread, groweth . . . on the hills of Lincolnshire.' Found circâ 1860, William H. Flowers; again circâ 1879, William Cook; and later still by Messrs. Marshall and Harrison. In every one of these cases I have the evidence of other people to confirm the fact. The County Herb. specimens were taken by me from the original root found by Mr. W. Cook, which is still growing in his garden. Professional gardeners tell me *Cyclamen* can resist the greatest English frosts provided the whole tuber be covered with earth, and the ground porous, so as to give rapid drainage.

LYSIMACHIA THYRSIFLORA L. Native, if with us still. Bot. Div. **N.**—1. 'South side of Keadby canal, between Keadby and Crowle Wharf, abundantly.' Rev. J. K. Miller's MS. *Flora of Walkeringham*, circâ 1842. Miller-Anderson *List*, 1846.

Lysimachia vulgaris L.† Native. All Bot. Divs. except **N.**—4.8. **S.**—15.17.

LYSIMACHIA PUNCTATA L. A mere garden escape. Bot. Div. **N.**—8. Louth, 1892; J. Larder. F. A. Lees' *Outline Flora*, 1892.

LYSIMACHIA CILIATA L. A garden escape. Lincoln neighbourhood. **N.** or **S.** not known. Dr. B. Carrington, *Bot. Gaz.*, 1849, pp. 323-324.

Lysimachia Nummularia L.† Native. All Bot. Divs. except **N.**—4. **S.**—17.18.

Lysimachia nemorum L.† Native. Bot. Divs. **N.**—2.6.8.10. 11.12. **S.**—13.16.

Glaux maritima L.† Native, on the Trent, Humber, and sea-coast. Bot. Divs. **N.**—1.2.3.4.9.11.12. **S.**—17.18.

COLEOPTERA IN NORTH-EAST YORKSHIRE.

M. LAWSON THOMPSON,

Saltburn-by-the-Sea.

As being likely to contain its measure of interest for coleopterists I have here made a selection from my working notes on the occurrence of beetles in North-east Yorkshire.

A merely partial acquaintance with the results of the most recent investigations admits of but slender reference to features in insect distribution suggested by these notes, but I believe that something like half the number of species constituting this list may prove to be additions to the coleoptera at present known to inhabit Yorkshire, and that many of the insects brought under notice are still considered rare in the North of England.

For their kindness in examining closely allied forms, and naming species which were beyond me, my thanks are due to the Revs. Canon Fowler and W. C. Hey, Dr. Sharp and Mr. J. Gardner.

Carabus arvensis F. Stanghow Moor, near Saltburn-by-the-Sea ;
running in the sunshine, May 1893.

Miscodera arctica Payk. Stanghow Moor, near Saltburn,
July 1891.

Bradycellus cognatus Gyll. Stanghow Moor, near Saltburn,
common.

Bradycellus distinctus Dej. Saltburn ; on the sea banks, one
specimen in May 1892. A rare insect in the North of England.

Calathus micropterus Duft. In a fir plantation below Stanghow
Moor.

Anchomenus marginatus L. Saltburn. Common on the
margin of a large pond.

Pterostichus vitreus Dej. (*orinomus* Steph.). Stanghow Moor.

Bembidium nigricorne Gyll. Stanghow Moor, near Saltburn,
August and September 1894.

Bembidium stomoides Dej. Saltburn Wood, on the margin
of the stream, end of April 1892.

Both these rare Bembidia were first taken many years ago
in the extreme North of England.

Trechus rubens F. Saltburn. At the foot of the sea banks.
One specimen in July 1892.

April 1895.

Hydroporus incognitus Sharp. Arncliffe Wood, near Whitby, in a small pool. Abundant in September 1894. This insect was plentiful at Saltburn last season in the locality discovered by the Rev. W. C. Hey.

Hydroporus melanarius Sturm. In mossy holes on Stanghow Moor, near Saltburn. Common, 1894.

Agabus biguttatus Ol. (**nitidus** Steph., **fontinalis** Steph.). In the stream in Saltburn Wood, August 1894.

Agabus conspersus Marsh. In Coatham Marsh, near Redcar, May and September 1894.

Agabus tarsatus Zett. (**melanarius** Aubé). Arncliffe Wood, near Whitby; in a small pool near a watercourse. One specimen in September 1894. A very rare insect, of which Canon Fowler in his work on the British Coleoptera says 'a single specimen in Dr. Power's collection taken in the Orkneys by Mr. Syme. Mr. Bold in his catalogue records a specimen from Long Benton, Northumberland, but I have not seen the insect, nor do I know of any person who has verified it.' (From whatever locality, an *Agabus* belonging to this species is certainly in Bold's collection).

Hydræna testacea Curt. In a pond at Saltburn, 1894.

Falagria thoracica Curt. On the sea banks at Saltburn; at roots of grass, and in sand-hollows.

Myllæna kraatzii Sharp. Saltburn; among rushes on the margin of a pond, July 1894.

Mycetoporus clavicornis Steph. (**brevicornis** Matth.). Saltburn, at roots of grass on the sea banks. One specimen at the end of March 1894.

Philonthus corvinus Er. On the Redcar sandhills; end of August 1894.

Stenus argus Grav. Saltburn; at roots of grass on the sea banks. One specimen at the end of March 1893.

Stenus subæneus Er. (**gonymelas** Steph.). Saltburn; at roots of grass on the sea banks, August 1892.

Hydnobius perrisi Fairm. Saltburn; on the sandhills. Common in October.

Hydnobius punctatissimus Steph. Saltburn; on the sandhills. Common in October.

Choleva longula Kell. Kilton Wood, near Saltburn; in a decaying fungus; one specimen early in October 1890. A rare insect.

Hippodamia 13-punctata L. Saltburn. A specimen abroad in February 1893.

Epuræa diffusa Bris. Saltburn. A single specimen among thistles on the sea banks, September 1894. A rare insect.

Soronia punctatissima Ill. Saltburn Wood. In a decaying fungus placed at the root of a tree to attract beetles, one specimen in August 1894.

Aphodius obliteratus Panz. Saltburn Wood. In a dead bird, early in October 1893. This local insect has chiefly occurred in more southern localities.

Dryophilus pusillus Gyll. Saltburn Wood. By sweeping herbage under fir trees, June and July 1893. A very local insect, occurring in certain districts south of Yorkshire.

Toxotus meridianus Panz. Saltburn. A pair on a stalk of grass in the more open part of a wood, June 1890.

Longitarsus lævis Duft. In a valley at Saltburn, July.

Notoxus monoceros L. On the sandhills at Saltburn, October (mild weather) 1894. A local insect, especially in the north.

Barynotus schönherri Zett. Saltburn. Common on the sea banks, April—July.

NOTES AND NEWS.

We are glad that Mr. H. E. Dresser, the author of the well-known standard work on the 'Birds of Europe,' has announced the issue of a supplement to it. The additions made to our knowledge of the subject during the ten years which have elapsed since the completion of the original work, as might be expected, are very considerable, so considerable as to need the publication of eight parts at a guinea each.

We are in receipt, amongst others, of the current programmes of the Craven Naturalists' Association, the Halifax Scientific Society, the Leeds Naturalists' Club, the Leeds Philosophical and Literary Society, and the Manchester Microscopical Society. All show evidence of vitality and progress, and the Leeds Naturalists' Club is in particular to be congratulated on devoting special attention to a definite line of investigation, pond-life being the one chosen. May it be hoped that the end of the season will show that much good work, both structural and systematic, bibliographical and faunistic, has been done by the Leeds members.

The Corporation of Stockport has recently acquired a unique object of interest, the handiwork and the gift of Mr. John Tym, Curator of the Vernon Park Museum. It is a window in which fluor-spar takes the place of glass, the pieces, carefully shaped and polished, being cemented together in an iron frame 7 ft. 3 in. by 3 ft. 3 in. The fluor-spar employed is the beautiful variety known as 'bluejohn' from the famous mine near Castleton, of which Mr. Tym was formerly manager. Visitors to Castleton have learnt that it has become increasingly difficult to obtain pieces of 'bluejohn' of any considerable size. The remarkable property of fluorescence, to which the mineral has given its name, will make a window of this material a very striking object.

April 1895.

NOTE—FISHES.

Large Cod at Flamborough.—The other day a large Codfish (*Gadus morrhua*) was shot at the South Landing, Flamborough. It had, no doubt, been feeding on some small dabs and had come too near the shore, when observed by Edward Major, who shot the fish. — MATTHEW BAILEY, Flamborough, January 15th, 1895.

NOTE—BOTANY.

Bekansgill.—I observe the note on this subject on page 82 of the 'Naturalist' for March. There is, it seems to me, hardly a possibility of doubt that the place-name, Bekansgill, takes its origin from the Scandinavian proper name, Beka. Mr. Ferguson, in his 'Northmen in Cumberland and Westmorland,' even surmises that the name of Beacon Hill, near Aspatria, is due to the said Beka. From the crude attempt at word-derivation in the Coucher Book of Furness Abbey, it seems likely that in 1412 there was some local plant growing in the valley, known as Beka. The monk's rude verse indicates this to have been the *Solanum dulcamara*, or Bittersweet, which, I understand, grows in the valley in great profusion, or at least, did so recently. But can anyone produce evidence of the dialect-word from any other source?—JOHN HAWELL, Ingleby-Greenhow Vicarage, March 14th, 1895.

[It should be mentioned that Mr. Petty is not responsible for the heading to his note in our last number. The heading was inserted editorially, and perhaps assumes more than Mr. Petty meant to imply in his note.—ED.]

NOTE—MAMMALIA.

The Otter's Method of Feeding.—Yesterday, as I was walking with a friend along the banks of the River Derwent, just below Ayton, watching the Water Voles taking their evening swim, our attention was attracted by the head and tail of a fair-sized Pike (*Esox lucius*) lying in a broad strip of mud at the edge of the stream. It was easy to see who had been dining there, for the unmistakable foot-prints of a large Otter (*Lutra lutra*) were plainly stamped in the wet mud. Bell says the Otter, in devouring fish, begins with the head, and rejects only the tail. In this case, head and tail were both left. Certainly a Pike's head does not look very inviting, and it is easy to understand the Otter's deviation from his usual practice in this particular case.—W. C. HEY, Derwent House, West Ayton, York, March 23rd, 1895.

NOTE—ORNITHOLOGY.

Flamborough Bird-Notes.—This year has come in with a vengeance and hurricane-like force. Who would have expected it so severe considering the very fine weather we had previous to 1895? No doubt the breaking up of the frost would be an agreeable change for the birds; the late storms have been terrible on our coast. The other day three very large swans (*Cygnus sp.*) were picked up on the beach and from off the rocks due north of the headland, brought in by the severe gales. Also several Little Auks (*Mergulus alle*) have been driven on to the land. Several Glaucous Gulls (*Larus glaucus*) have made their appearance on our coast, and thousands of Golden Plovers (*Charadrius pluvialis*), rather unusual visitors here. A few Snow Buntings (*Plectrophanes nivalis*) have arrived, and a great many Larks (*Alauda arvensis*) have come in from the sea. When last I wrote a perfect stranger had arrived, a beautiful little bird known as the Weaver, from Africa. Some think it is an escape. Can anyone tell me whether there are many or any kept in confinement in England?—MATTHEW BAILEY, Flamborough, January 15th, 1895.

[We owe Mr. Bailey and our readers an apology for the delay in printing this note, owing to its having been inadvertently mislaid. As will be seen, it contains one of the earliest records of *Mergulus alle*.—ED.]

YORKSHIRE NATURALISTS' UNION AT FERRYBRIDGE.

THE second excursion of 1894 was arranged for the investigation of the immediate neighbourhood of Ferrybridge and Ferry Fryston, including the parks at Fryston and Byram, for which permission had been most liberally granted by Lord Houghton and Sir John Wm. Ramsden, Bart. The day fixed was Saturday, the 16th of June, when the weather proved favourable.



EXPLANATION.—The Map is divided into square miles by horizontal and perpendicular lines.

There was a very large attendance, including a strong contingent of active collectors from the boys of the Ackworth School Natural History Society, headed by some of the teachers, including Mr. Joseph Neale, B.A., and Mr. R. Christie Burn. These gentlemen took a leading part in the guidance of the various parties,

April 1895.

of which three had been arranged, although in practice they were concentrated, and two distinct lines of route carried out. Mr. Burn led the geologists for the purpose of investigating the quarries on the Byram estate, and Mr. Neale was the leader of the more numerous party of naturalists who carefully examined the prolific osier beds, pools, and ditches in the close vicinity of the church of Ferry Fryston.

At the close of the day's work the members availed themselves of the 4.47 p.m. train for Pontefract, at which place it was found necessary to hold the meetings on account of the want of suitable accommodation nearer the scene of the day's work. Tea was served at the Red Lion Hotel, where also the meetings—both sectional and general—were held.

At the general meeting the chair was occupied by Mr. Thomas Bunker, of Goole. The roll-call showed that the 80 or 90 members and associates present were representative of 17 societies, viz.:—Barnsley, Wakefield, Liversedge, Bradford Naturalists, Goole, York, Malton, Harrogate, Ackworth, Huddersfield, with four Leeds and three Hull societies. Thanks having been voted to the various landowners, leaders of parties, and contributors to the excursion circular, the sectional reports were then given.

The Vertebrate Section was officially represented by its President, Mr. John Gerrard, M.B.O.U., and one of its Secretaries, Mr. Riley Fortune, F.Z.S. (who furnishes the report). The route taken was through the osier grounds at Ferry Fryston, and from thence through the park and woods of the Fryston estate. The only record of note was the discovery of the Ten-spined Stickleback (*Gasterosteus pungitius*). The capture of a fine Tench (*Tinca vulgaris*) which was basking on the shallows in a pond near Fryston Hall formed an interesting feature in the ramble, and the chase and subsequent capture of a Pied Rabbit (*Lepus cuniculus*) which took to the water to escape from its enemies, was not without interest. This rabbit, a pied grey and white one, had the markings which distinguish the fancy variety known as 'Dutch,' and was no doubt the progeny of some which had been turned down in the park. The information given by the head keeper that the Nightingale (*Daulias luscinia*) had put in an appearance, and was evidently nesting near the hall, was extremely interesting (though time would not allow the investigation of the fact by the members), as was the knowledge that he had obtained a Badger (*Meles meles*) upon the estate in October 1891.

The result of the day's investigation was the recording of 6 Mammals, 45 Birds (26 residents and 19 summer visitors), 3 Amphibians, and 5 Fishes. Following is a detailed list. An

asterisk (*) preceding the name of a bird indicates that the species was found breeding, and that either young birds or eggs were seen :—

Mammals.	Grasshopper Warbler.	Jackdaw.
Hedgehog.	Hedge Sparrow.	Rook.
Common Shrew.	Great Tit.	Swift.
Weasel.	Cole Tit.	Cuckoo.
Brown Rat.	Pied Wagtail.	*Mallard.
Water Vole.	Yellow Wagtail.	Ring Dove.
Rabbit.	Meadow Pipit.	Turtle Dove.
Birds.	*Tree Pipit.	*Pheasant.
*Missel Thrush.	*Spotted Flycatcher.	Land Rail.
*Song Thrush.	*Swallow.	*Waterhen.
*Blackbird.	*Martin.	Lapwing.
Whinchat.	*Sand Martin.	Amphibians.
Redstart.	*Greenfinch.	Smooth Newt.
*Robin.	*Sparrow.	Toad.
*Whitethroat.	*Chaffinch.	Frog.
*Lesser Whitethroat.	Linnet.	Fishes.
*Garden Warbler.	Yellow Bunting.	Three-spined Stickleback
Chiffchaff.	Corn Bunting.	Ten-spined Stickleback.
*Willow Wren.	Reed Bunting.	Roach.
Wood Wren.	Skylark.	Tench.
*Sedge Warbler.	*Starling.	Pike.

The Conchological Section was not represented by any of its officers, and in their absence Mr. J. Hawkins, of York, reported that the following species had been taken, mostly by himself and Mr. W. Denison Roebuck, F.L.S., the area of collection including not only the ponds and ditches about Ferry Fryston, but also the limestone escarpments about Brotherton. The species noted were :

Planorbis corneus.	Valvata cristata.
Planorbis complanatus.	Succinea putris.
Planorbis carinatus.	Helix nemoralis and vars. castanea and rubella.
Planorbis spirorbis.	Helix arbustorum.
Planorbis vortex.	Helix cantiana.
Limnæa peregra.	Helix hispida.
Limnæa truncatula.	Helix rotundata.
Limnæa pulustris.	Helix virgata and var. alba.
Physa fontinalis.	Hyalinia alliaria.
Physa hypnorum.	Hyalinia nitidula.
Bythinia tentaculata.	Hyalinia cellaria.
Pisidium amnicum.	

For the Botanical Section, Mr. Albert H. Pawson, hon. secretary, reported that the botanists found ground very much to their liking in some marshy flats which are enclosed by high railway embankments. Mr. Neale and the Ackworth school-boys are well acquainted with the best hunting-grounds, and led us at once to the home of

several rarities, such as *Utricularia neglecta*, *Hottonia palustris*, *Lysimachia nummularia*, and *Veronica scutellata*. *Stellaria glauca* was in the same company, and the large Reed Mace, the Marsh Cinquefoil, and other swamp-loving plants. In the woods *Viola hirta* was common. Growing among the rubble of deserted quarries a foxglove-like biennial, not yet showing bloom, puzzled the party for a while, until Rev. W. Fowler pronounced it to be *Inula conyza*. Another plant which, despite its specific name, does not often come under the ken of West Riding botanists was *Anthriscus vulgaris*, a small colony of which was found by Mr. Beanland on a railway embankment. This umbellifer, well marked by its fruit, rough with hooked bristles and tapering into a glabrous beak, has, as Mr. Bentham observes, the habit rather of *Caucalis* than *Anthriscus*. It was seen by several of us for the first time. The rich, deep soil of Pomfret, so famous for its orchards and liquorice-gardens, which are nourished by crumbling cliffs of magnesian limestone, could not fail to produce a good number of plants; although in times now past, when the population was smaller and the atmosphere less tainted with smoke from the coal-pits, the list would have been larger. The more uncommon species were:

<i>Berberis vulgaris</i> .	<i>Ligustrum vulgare</i> .
<i>Nasturtium palustre</i> .	<i>Campanula latifolia</i> .
<i>Reseda lutea</i> .	<i>Hottonia palustris</i> .
<i>R. luteola</i> .	<i>Lysimachia nummularia</i> .
<i>Cerastium arvense</i> .	<i>Linaria cymbalaria</i> .
<i>Helianthemum vulgare</i> .	<i>Veronica scutellata</i> .
<i>Viola hirta</i> .	<i>Utricularia neglecta</i> .
<i>Rhamnus catharticus</i> .	<i>Origanum vulgare</i> .
<i>Acer campestre</i> .	<i>Calamintha clinopodium</i> .
<i>Anthyllis vulneraria</i> .	<i>Ballota nigra</i> .
<i>Cornus sanguinea</i> .	<i>Plantago media</i> .
<i>Bryonia dioica</i> .	<i>Humulus lupulus</i> .
<i>Smyrnium olusatrum</i> .	<i>Urtica urens</i> .
<i>Daucus carota</i> .	<i>Parietaria officinalis</i> .
<i>Anthriscus vulgaris</i> .	<i>Tamus communis</i> .
<i>Inula conyza</i> .	<i>Typha latifolia</i> .
<i>Tanacetum vulgare</i> .	<i>Scirpus lacustris</i> .
<i>Carlina vulgaris</i> .	<i>Bromus erectus</i> .
<i>Centaurea scabiosa</i> .	<i>Ophioglossum vulgatum</i> .

It should be mentioned that *Bromus erectus*, which is by no means a common grass, flourishes here in great abundance. It was just coming into bloom, and its tasselled plumes adorned every dry bank.

For the Entomological Section the active collecting work was done by the Ackworth boys, and we are indebted to Mr. Joseph

Neale, B.A., for the names of a few of the beetles taken. These are :

Chrysomela banksii.
Phratora vulgatissima.
Timarcha lævigata.
Gastrophysa raphani.
Gastrophysa polygoni.

Prasocuris beccabungæ.
Prasocuris marginella.
Telephorus melanurus.
Aphodius fossor.
Aphodius fimetarius.

The Geological Section was represented by both its honorary secretaries, Mr. John W. Stather, F.G.S., of Hull, and Rev. W. Lower Carter, M.A., F.G.S., of Hopton, near Mirfield—the latter of whom supplies the report, to the following effect:—The beds examined belong chiefly to the Permian series, and consist of the Lower and Upper Magnesian Limestones, parted by the Middle Marls, which form slight parallel escarpments to the north of Brotherton. The Upper Limestone was well seen in the quarries to the north of Brotherton, and a short halt was made whilst a brief account was given by one of the leaders (Rev. W. L. Carter) of the origin and stratigraphical importance of the Permian Beds. Passing on to the Great North Road, the party retraced their steps to Ferrybridge, and made a traverse across the country to Pontefract, excellent sections of both Upper and Lower Limestones being seen in the railway cuttings. On arriving at the Pontefract Station some time was devoted to the examination of the sandstone rock, about the stratigraphical position of which much controversy has raged. The sections are much overgrown, and several critical points could not be examined, but the evidence seemed conclusively to point to the Carboniferous age (Millstone Grit) of these beds. The geological party was swelled by a large contingent of boys from Ackworth School, and a number of the members of the Leeds Geological Association came over for the afternoon tramp.

The customary vote of thanks to Mr. Bunker for presiding brought the proceedings to a close.—W. D. R.

NOTES AND NEWS.

A couple of Manchester entomologists, Mr. Herbert Massey, of Didsbury, and Mr. Benjamin Hill Crabtree, of Levenshulme, have been elected to the Fellowship of the Entomological Society of London, at one of its recent meetings.

The last piece of work which appears to have been performed by the distinguished hepaticologist, Dr. Richard Spruce, and which he left unfinished, has just been published by the Linnean Society in the Botanical Series of their Journal. The title of the paper is ‘*Hepaticæ Elliottianæ, insulis Antillanis Sti Vincentii et Dominica a clar. W. R. Elliott, annis 1891-92, lectæ, Ricardo Spruce determinatæ.*’ It runs to 42 pages, and is illustrated by 11 plates. Dr. Spruce’s incomplete manuscript has been revised and recast by Mr. A. Gepp.

THE NATURAL HISTORY OF FLAMBOROUGH.

Flamborough : | Village and Headland. | By | Various Writers. | Edited |
by | ROBERT FISHER, M.A., | Vicar of Sewerby. | Hull : | William Andrews
& Co., the Hull Press. | London : . . . | — | 1894.

WANT of space has till now crowded out our notice of this little book, which is published in two forms, as a shilling guide in paper, and as a 3/6 book in cloth. In either case it is a handsome little handy volume, which gives us pleasure to notice. The Editor has not failed to avail himself of much co-operation, and almost every aspect of the subject is touched upon by a competent hand. Passing over the topographical and ecclesiastical chapters, subjects which do not enter within our scope, and for which the Editor is largely entitled to the credit, we notice that the birds are very fully treated, as the book includes (what makes it specially valuable) Mr. Matthew Bailey's list of no less than 229 species---the greater majority of which have passed through his hands during the *forty* years he has observed the ornithology of the headland. Some remarks by Mr. John Cordeaux, M.B.O.U., accompany the list, and there is also a more discursive chapter on birds by Mr. Thomas Boynton, who quotes Seebohm's account of the 'Egg-climbing.' The Rev. E. Maule Cole, M.A., F.G.S., treats of the antiquities and of the geology, illustrating the latter with a woodcut map. The Flowering plants, of which the Editor takes cognizance, are but slightly treated, and Mr. M. B. Slater, F.L.S., and Mr. William West, F.L.S., write the chapters on the various forms of cryptograms, the algæ falling to the share of the last-named. The interesting chapter dealing with the mollusca, both marine and land and freshwater, is from the pen of the Rev. W. C. Hey, M.A., and Mr. James H. Rowntree gives a few brief observations on the Lepidoptera, and some on the pebbles of the shore. The folk-lore chapter is written by Mr. Arthur H. Armytage, and the Rev. M. C. F. Morris discusses the dialect. The book is well got up and an interesting one to read, and it will be of much value to all visitors interested in the natural history of so remarkable a feature in British topography as the grand old headland of Flamborough.

NOTES AND NEWS.

We wish to draw special attention to the announcement on the second page of the cover, that books for review and serials sent in exchange should be in future sent to the Editor direct. This change is rendered necessary by the approaching marriage and removal from Leeds of Mr. Leonard Hawkesworth, to whom the Editors have been indebted for much valued co-operation in various ways, and to whom and his intended bride, Miss Mortimer, not only they but many of their readers will wish many years of happiness and prosperity. Mr. Hawkesworth's willingly-rendered assistance will not be altogether lost, but it is quite evident that removal from Leeds makes it necessary to revert to the old address for exchanges.

Naturalist,

In Memoriam.

JOHN MAW KIRK, F.R.M.S.,

BORN NOVEMBER 7, 1850; DIED OCTOBER 31ST, 1894.

THE subject of the following sketch, whose death at the comparatively early age of forty-four has caused a deep and wide-spread feeling of regret, was the eldest son of Mr. Thos. Kirk, of Doncaster, who for many years carried on a successful business in the High Street. He was named after his maternal grandfather, Alderman John Maw, who was Mayor of Doncaster in 1852. Mr. Kirk, Sen., who was endowed with considerable intellectual powers, was also a man of somewhat original character, and in many respects his son resembled him.

At an early age Mr. J. M. Kirk evinced a decided taste for music, which led to his becoming connected with the choir of the Doncaster Parish Church, and this connection, as choir-boy, chorister, and choir-master, continued without intermission until his death. Music was with him the chief hobby of his life, and that in which he most excelled. For many years no amateur musical entertainment in Doncaster and neighbourhood was considered complete without him. In addition to being leader of the Parish Church Choir, he was director of the Doncaster Musical Society and of the Doncaster Orchestral Society; and these, under his fostering care and conduction, gave from time to time some very excellent concerts, which deservedly met with a large share of appreciation.

Although so closely identified with music, he took a deep interest in various branches of natural history, and this eventually led him to seek the acquaintance of the writer and to become associated with him and a mutual friend in discussing the formation of a microscopical society for Doncaster. At that time, the early part of 1880, there was no scientific society in the town. The Philosophical Society had passed out of existence some years before, and no effort had been made to resuscitate it. In response to a circular signed by J. M. Kirk, M. H. Stiles, Fred Milner, and Geo. Winter, a meeting was called, and the Doncaster Microscopical Society was started more successfully than the promoters had expected.

Mr. Kirk was new to microscopy, but he threw himself into the work with great ardour, and being possessed of natural gifts of a high order, soon became recognised as an earnest and careful observer. He was ever ready with a paper, and scarcely a session passed during his connection with the society in which his name did not appear in the programme.

Mr. Kirk was married in April, 1882, to the youngest daughter of Mr. S. Meacock, J.P., formerly mayor of Doncaster. On this occasion, in recognition of his long and meritorious musical services, the congregation of St. George's (Doncaster Parish Church) presented him with a very fine and handsome binocular microscope, an instrument he was justly proud of and with which he was never tired of exhibiting, whenever he had the opportunity, those lower forms of life which were his especial delight.

When the Doncaster Microscopical Society became affiliated to the Yorkshire Naturalists' Union, Mr. Kirk took great interest in the proceedings of the latter, and invariably made a point of being present at its meetings whenever he conveniently could do so. On these occasions his burly form and familiar face were always welcome, and any remarks he had to make were attentively listened to. When he spoke it was to the point; his language was terse and well chosen, his delivery impressive, and his voice clear and good. It was thus also with his papers: what he attempted to do he did well. A series of lecturettes on the lower forms of animal life will ever live in the minds of those who heard them and who saw the exquisitely beautiful drawings with which they were illustrated. In addition to his other gifts, Mr. Kirk was an artist of no mean capacity, and was equally at home with the brush or the pencil. Some of his natural history sketches in colour were wonderfully accurate and good, and exhibited a wealth of detail which was surprising to those who knew not what infinite pains and care he took in his work.

For illustrating his papers he adopted a particularly effective method, sketching the enlarged object in Chinese white on black cardboard, thus simulating the beautiful result produced by black-ground illumination with the microscope.

It would scarcely be true to say that Mr. Kirk did any original work, at least there is no record of such. For some years he was secretary of the Micro-Zoological and Micro-Botanical Committee of the Y.N.U., and in this capacity reported on gatherings made during some of the excursions; but I am not aware that he ever engaged in any special investigation.

The business to which he succeeded at his father's death was not prosperous in his hands, and after a few years he gave it up and sought occupation as a teacher of singing. This did not answer his expectations; so when in 1891 the post of librarian to the Doncaster Free Library became vacant, he applied for and obtained it. The occupation was a thoroughly congenial one, and though compelled to give up private teaching, he was able to retain his appointments

as leader of the choir and director of the Doncaster Musical Society, two objects in which he took the deepest interest.

Just when he seemed to be more comfortably settled than he had been for many years, his health began to cause anxiety to his nearest friends; outwardly there was little difference, but those who knew him well could see important changes impending. At this time, the end of July 1894, he, in company with his wife, took a trip to Paris. Before he started he had doubts as to the wisdom of taking such a journey, but he had so much enjoyed a similar holiday in the previous year that, though conscious of his weakness, he was wishful to repeat it. The return voyage was a very rough one, and Mr. Kirk, who was abnormally stout, suffered very much from seasickness, so much so, indeed, that a few days after his arrival at home he was compelled to take to his bed. Although he slightly rallied, he never made any real progress towards recovery; and, despite skilful medical aid and the unremitting care and attention of a most devoted wife, he ultimately passed away on October 31st, 1894, deeply mourned and regretted by all who knew him. His funeral took place on November 2nd, and was attended by a vast concourse of his fellow-townsmen, who had assembled to show their great respect for one who had done so much to entertain and instruct them.

Few men in Doncaster were better known than he, and few will be more missed; his splendid capacity for work and his genial good nature and obliging manner made him a general favourite, and it is much to be deplored that the career of so useful a man should have been cut short in its very prime. Mr. Kirk leaves a widow but no children. Since his death a number of friends and admirers, more particularly those who were associated with him in musical or scientific pursuits, have raised a fund for the purpose of erecting a memorial to him in the splendid church with which he was so long associated, and which he loved so well.

DONCASTER, *March 6th*, 1895.

M. H. STILES.

NOTES AND NEWS.

Before this reaches the eye of the reader, the Messrs. Linton, Moyle Rogers, and Murray will have issued to their subscribers the 4th Fascicle of 'Specimens of British Rubi.' Over 100 named and well-prepared specimens are contained in these four parts. Most, of course, are south-country varieties—or 'forms,' as some consider. How is it that the Westmorland, Cumberland, and North (or Lake) Lancashire brambles have not had an equal amount of attention paid to them as those of neighbouring counties? The country is quite as interesting, and the material in almost overpowering abundance. Perhaps time will bring the man or men, as well as changes of opinion, but this workmanlike attempt to fix the nomenclature of one of the most difficult genera will undoubtedly help the matter on by providing authentic specimens.

April 1895.

FARM VERMIN.

RIDER'S TECHNICAL HANDBOOKS. No. 5. | **Farm Vermin, | Helpful and Hurtful.** | By | Various Writers. | Edited by | JOHN WATSON, F.L.S., | . . . | London: | William Rider & Son, Limited | . . . | . . . [no date, 8vo., 85 pages, cloth, price 2/6].

There are many ways of writing books on our British Quadrupeds, and the little book before us takes them from the standpoint of their utility or want of utility to the farmer. The list of writers include Sir Herbert Maxwell, Bart., M.P., who discusses the voles; Mr. O. V. Aplin, who takes the weasels, mole, and hedgehog; Mr. John Cordeaux, who writes upon the fox and the badger; Mr. C. B. Whitehead, B.A., who discusses the hare and rabbit; the Editor, who touches upon the bats, and Messrs. Cecil Warburton, M.A., and John Nisbet, D.Oec., who have a joint chapter on the rats and mice. In addition to this Dr. Nisbet has a couple of chapters on the Enemies to Woodlands and Nurseries, treating of many species from deer down to mice. There are about a dozen woodcut illustrations. A good deal of incidental information as to the natural history and economic value of each animal mentioned is given, with a few suggestions as to suitable remedies for the evils pointed out.

NOTES AND NEWS.

From Messrs. Longmans, Green & Co. we have received 'Bird Notes,' by the late Jane Mary Hayward, edited by Emma Hubbard. A volume of some 250 pages, with fair illustrations, the book may be regarded as a memento of its authoress, and as such will be appreciated by those who comprised her circle. The notes are proofs of affection for birds and also of painstaking observation. Various poems intersperse the text, which give the appearance of 'fillings up.' The general get-up reflects credit on the publishers, but we cannot see that there will be any great demand for the book, beyond the boundaries of Devonshire, the county in which the notes are made.

It is with considerable regret that we learn of the decease (on the 1st of March) of Mr. John Hagger, F.L.S., of Repton School, on whose tutorial staff he had been for no less than 35 years. His sympathies were widespread, and he took interest in more than one branch of natural history. His studies began with botany, and afterwards conchology and the microscope occupied much of his attention. In addition he interested himself, though to a slighter degree, in mosses, eggs, beetles, and lepidoptera; in fact he was truly a nature-lover, examining eagerly every object which came under his eye. He formed a large collection of plants, and a very good one of shells, which are both left in perfect condition. He published but little himself, but assisted Mr. W. Garneys in bringing out a new and more complete edition of the Repton Flora, and he supplemented the Rev. W. H. Painter's collection of Derbyshire plants for presentation to the Derby Museum. He contributed papers to various scientific journals, and the 'English Mechanic' was a paper in which at one time he wrote frequently. Mr. Hagger was also a poet, and a small volume of his poems, which were favourably received some 35 years ago, has recently been reprinted for private circulation. He was a native of the north country, having been born at Cockermouth in 1824, and throughout his life he cherished a deep and patriotic affection for the hills of his native Cumberland.

BIRD-NOTES FROM THE HUMBER DISTRICT IN THE WINTER OF 1894-5.

JOHN CORDEAUX, M.B.O.U.,
Great Cotes House, R.S.O., Lincoln.

(Continued from Page 6.)

Otocorys alpestris (L.). **Shore-lark.** Since the middle of December, but particularly from the commencement of the great frost in January, Shore-larks were very plentiful in the Spurn district. Thousands, I am told, were seen. So numerous were they, in fact, that Mr. Hewetson thinks they must at one time have out-numbered the Snow-buntings. A large flight went south along the coast on March 8th from which a specimen, which I saw in the flesh, was got.

Turdus pilaris L. **Fieldfare.** December 18th. S. strong, slight snow, the first in the season. Many Fieldfares passed over this parish (Great Cotes) from east to west. Mr. Hewetson has a pretty variety, an adult mottled with white as if sprinkled with snow.

Columba palumbus L. **Wood Pigeon.** December 22nd. Very heavy gale from S.W. to W. and N.W. From 9 a.m. to about noon immense flights of Wood Pigeons were observed passing inland from east to west across the Stallingborough marshes. Flocks of thousands, and continuously. Mr. Haigh says that on January 27th larger flights of pigeons crossed Tetney village going inland.

Mr. Hewetson writes that on December 22nd an immense immigration of the *Corvidæ* was observed near Easington. This migration was a double one, from north to south along the coast, and also from east to west, coming in directly from the sea, the two lines of flight crossing at right angles. A single Raven (*Corvus corax*) accompanied the sea flight.

Mergulus alle L. **Little Auk.** Following upon the gale of December 22nd there came on December 28th and 29th strong winds from N.W. to N. with snow and rain; after this, early in the year, a few Little Auks were recorded in Yorkshire and Lincolnshire, driven inland, picked up on the coast, or seen exhausted battling in the surf. Again on January 13th a strong easterly gale with driving snow. This was the worst and most dangerous of the on-shore gales I can remember from the east. Fishermen say it was terrible at sea, and they scarcely hoped to weather it. Subsequently it was known that the loss of life and

gear amongst the fishing fleets from Grimsby and Hull had been the heaviest for many years. This gale drove many more Little Auks on shore. Once again on January 21st, N.E. strong; hail and snow; sea high and rough; it was on this day that the main body of Little Auks were seen from Scarborough to the Spurn moving in continuous flocks to the south—thousands after thousands all in the same direction—some close in shore others again further out to sea. Off Flamborough the sea was covered with them. Along the line of flight many were shot, others flew inland, many were washed up dead, some living but exhausted. It is impossible to give any but an approximate estimate of the number which from one cause or another perished. From personal enquiries which I made at various localities along the coast, I should think that in the immediate neighbourhood of Scarborough and Filey the number would reach 400 to 500, and certainly not less than 1,000 for the Yorkshire coast and interior between Redcar and the Spurn, and it is not improbable it might even reach 1,500, for dead birds might be found at high-water mark all along the coast-line. Storm-driven Auks were found in the most unexpected places, in village streets and country roads, back yards, ditches, gardens, and in a poultry enclosure with chickens. At Bridlington Quay one came down a chimney into a bedroom; in the morning being conveyed to the beach it was set at liberty and flew to sea apparently none the worse for its adventure.

In no case that I can ascertain was any sort of food found in the stomach of a captured bird. Those which I handled were all in poor condition, with the breast-bone sharp and prominent. They vary much in size, but size, Mr. Oxley Grabham, of Scarborough, told me, is no indication of sex, as one of the largest and one of the least of the Scarborough birds examined by him were both females. It is curious that a very large proportion of those obtained during this incursion were females.

The colours of the soft parts vary in individuals. The bill is black, inside of mouth flesh-coloured with the palate studded with reversed horny papillæ, tongue very large. In ornithological works the iris is said to be a dark brown or hazel, and this is the normal colour. In one of our Lincolnshire birds which I examined it was dark slaty-blue. The tarsi and toes in front are a bluish or slaty white, and sometimes inclined to flesh colour, the same parts behind and beneath dusky (almost black in some), webs dark. One, in Mr. Grabham's collection,

retains much of the black on the throat and breast characteristic of the summer plumage. In some the white of the throat and cheeks extends to the back of the neck and forms a continuous collar, but no two birds are quite alike, the variations being extraordinary, even their bills differing in size. All observers agree that they fly with great rapidity, with the speed of Rock Doves, and in a direct line; at the same time they can turn or rise to a higher level with the greatest ease. We do not think that these great flights, this storm of Iceland Auks, as the fishermen call them, have come direct to the east coast from Arctic latitudes. Sailors and fishermen say they meet with them sometimes at sea in the winter months, and often in great numbers. Continuous heavy gales, which prevent them feeding, will in time force them to the land; but they do not voluntarily approach the coast except under stress of weather, and after a succession of such storms as we have had this winter. A Flamborough fisherman told me he had seen a single Little Auk off the headland on March 7th.

Uria bruennichi E. Sabine. **Brünnich's Guillemot.** One, an adult male, was shot on the North Bay, Scarborough, on January 7th, by a loafer who did not take the trouble to pick it from the water; fortunately it was secured by an onlooker and taken to Mr. W. J. Clarke, naturalist, who at once recognised its rarity. The bird was exhibited by Mr. Harting at the meeting of the Linnean Society of London on Jan. 17th. Another, a remarkably fine bird, also a male, was got at Filey on January 30th, by Mr. Oxley Grabham, who picked it up on the sands. This measured $19\frac{3}{4}$ inches in length and $28\frac{1}{2}$ inches in expanse of wing. There was a white edge to the basal half of the upper mandible, and the bird was very dark-coloured on the head and back; legs yellowish-olive. A third, of which Mr. Grabham has the skin, a female, was obtained at Filey about the same time. It is probable that this species is of more frequent occurrence off the coast in some winters than we have hitherto supposed. It is a very likely bird to be overlooked. All these three Yorkshire examples were got from the shore, and when we consider how seldom it is that the Common Guillemot is driven on the coast we may reasonably suppose those occurrences must be very exceptional in which this large and robust Arctic bird is incapable of keeping the sea.

The three Yorkshire specimens have been sent to Lord Lilford, and we are glad to learn Brünnich's Guillemot will be the subject of a plate in his beautiful 'Illustrations of British Birds.'

Fringilla montifringilla L. **Brambling.** Very numerous during the winter, frequenting fields along the coast, and with the severe weather resorting in great numbers, with other birds, to farm and stack yards. Mr. Haigh, writing from Grainsby Hall, January 12th, 1895, says: 'We have been feeding the birds all through the "blast," they eat almost a sack of oats a day; Bramblings most numerous, and two to three hundred are often seen on the feeding-place at a time. On the 9th of January he received some killed in a farmyard by a boy shooting at sparrows, and amongst these were two which had the yellowish-buff of the throat replaced by black like the head.

Acanthis linaria (L.). **Mealy Redpoll.** A few have been seen, and examples obtained, in the Spurn district during the winter.

Plectrophenax nivalis (L.). **Snow-Bunting.** Very numerous in Holderness and in Lincolnshire in January. Some obtained near Easington, Mr. Hewetson thinks, are a distinctly smaller and more lightly-coloured race, and Mr. Hewetson's example, shot this winter, quite bears this out, as it is certainly the smallest Snow-Bunting I have seen, and is very mealy looking. The wings extend quite to the end of the tail.

Charadrius pluvialis L. **Golden Plover.** January 4th. A very great movement was observed by Mr. Hewetson in the Spurn district at the beginning of the frost, on this day flights of thousands suddenly appeared, the flocks, half-a-mile in length, passing south, and immense numbers were also scattered about the country; up to this date they had been very scarce; Lapwings (*Vanellus vanellus*), however, in enormous numbers during November and December.

Anser brachyrhynchus Baillon. **Pink-footed Goose.** Three, which I examined in the flesh, all most beautiful, clean and bright specimens, were killed at the same shot from a flock of fifteen by Mr. Haigh. On the 20th I saw a remarkably fine Bean Goose (*Anser segetum*) which had been killed in the marsh district below Louth, and was subsequently told it was very tender eating, which put me in mind of what the old wild-fowl shooter used to affirm, if you want a tender goose do not shoot at the leading birds, but take those in the rear of the flock.

Mergus merganser L. **Goosander.** Feb. 6th. Mr. Haigh saw a beautiful male near Grainthorpe Haven.

Totanus ochropus (L.). **Green Sandpiper.** February 7th. One was shot by Mr. Haigh which did not appear in any degree to have suffered by the severity of the season.

Ædicnemus scolopax (S. G. Gmelin). **Stone Curlew.**

January 30th. One was shot on the coast near Marsh Chapel. This is now in Mr. Haigh's collection at Grainsby Hall. This winter occurrence is well worthy of note, so far north in these islands, of a spring migrant. One is also recorded (Zool. 1895, p. 68) on January 7th in Sussex in this year.

Ampelis garrulus L. **Waxwing.** Mr. Jones, of Filey, received one shot at Hunmanby on January 18th. A very fine male bird was picked up dead at Flamborough on January 19th. It has also occurred sporadically in other parts of England. (See The Zoologist, 1895, pp. 69 and 70.)

Larinæ. Gulls. Glaucous Gulls (*Larus glaucus*) have been numerous on the Yorkshire and Lincolnshire coast. Some adults which have been got are the finest I have ever seen. The Iceland Gull (*Larus leucopterus*) is much the scarcest of the two, and comparatively few have been noticed. Two Little Gulls (*Larus minutus*) were shot on the Yorkshire coast, and another, a young bird, which I saw, was got on the shore at Cleethorpes, Lincolnshire. Mr. Machen, of Bridlington Quay, told me that he found in the stomach of an immature Great Black-backed Gull (*Larus marinus*) he was skinning, a Little Auk so little damaged that he was going to set the two up in the same case. In another instance an Auk shot from Filey Brigg, before it could be recovered from the sea, was pounced upon and swallowed entire by a Glaucous Gull. These great predacious Gulls were, however, not the only foes of the Little Auk. Mr. Bailey says a Flamborough fisherman, George Emerson, a great observer of birds, when fishing with the long lines in January, saw a 'great hunting Hawk' strike an Iceland Auk from a flock and carry it off.

Cygnus musicus Bechstein. **Whooper Swan.** Some flocks in the Humber from early in January. They appear to have suffered greatly from the arctic weather, which is curious in a species capable of changing its season in a night. A Whooper in an exhausted condition was taken alive at Tunstall, in Holderness, another, in grey plumage, caught at Easington, has been transferred to the Park at Leeds. This bird improved immensely in condition after its capture. Three were washed up dead on the beach between Withernsea and the Spurn. One, I saw in Mr. Kew's shop at Louth, is in grey plumage, but almost merging into pure white. Mr. Haigh says a flock of fourteen were seen near Tetney in February, and on the 21st

four pitched in a turnip field near the sea bank in Marsh Chapel; a sheep dog made a rush for them and succeeded in seizing one unlucky bird by the leg, which in attempting to rise had struck against the top of the sheepnet; the Swan carried its captor off his legs and dragged him some distance along the ground, till the shepherd issuing from his shelter hut killed it with the stove poker. It was in poor condition, weighing only $13\frac{1}{4}$ pounds. One which I saw in the flesh, was an adult in fair condition and weighed 18 lbs.; it was shot on the coast by Mr. Haigh on the 23rd. This by no means exhausts the number seen or obtained. Several Mute Swans (*C. olor*), no doubt frozen-out birds, were also washed up dead on the coast. Other species besides Swans have succumbed to the extraordinary severity of this winter, on the Yorkshire coast, Razorbills, Guillemots, and innumerable Little Auks. On the 18th and 19th of February Mr. Haigh found scores of the smaller Gulls, *Larus canus*, *Rissa tridactyla*, *Larus ridibundus*, but particularly the latter, washed up between Tetney Haven and Saltfleet, also a Gannet (*Sula bassana*), Scoter (*Ædemia nigra*), two Scaups (*Fuligula marila*), and a Woodcock (*Scolopax rusticola*). On the coast near Easington, Yorkshire, on the 26th, a Black-throated Diver (*Colymbus septentrionalis*) was picked up dead.

Anatidæ. Geese and Ducks. Great numbers of Brent (*Bernicla brenta*) frequented Kilnsea Bay during the frost. These showed considerable differences in plumage from the white-bellied race to others with the under parts an almost uniform black. Mr. Grabham told me of a Bernacle Goose (*Bernicla leucopsis*) shot at Filey about Christmas, 1894; also a female Eider (*Somateria mollissima*) shot from the Brigg. The stomach contained two shore crabs, one measuring $2\frac{1}{2}$ inches across the carapace. An adult male Long-tailed Duck (*Harelda glacialis*) in very complete plumage was shot in the same locality. On February 22nd I saw a fresh-killed adult female Velvet Scoter (*Ædemia fusca*) which had been obtained on the Lincolnshire coast. Flocks of various Ducks, Scoters, Scaup, Common Pochard (*Fuligula ferina*), Tufted Duck (*F. cristata*), and innumerable Wigeon (*Mareca penelope*), and some females and young Golden-eyes (*Clangula glaucion*), with many common Wild Duck (*Anas boschas*), frequented the Humber near the Spurn, and along the river coast in January and February.

Fulmarus glacialis (L). Fulmar. A few have been seen at sea in January and one was shot near Flamborough.

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Papers and Records published with respect to the Natural History and Physical Features of the North of England.

FRESHWATER ALGÆ, 1888 to 1892.

THE present instalment has been compiled and edited by
WM. DENISON ROEBUCK, F.L.S.,

who is under much obligation to his friends Mr. William West, F.L.S., of Bradford, and Mr. Washington Teasdale, F.R.M.S., for kind assistance in the loan of books which it was necessary to see in order to render this bibliography more complete.

Previous instalments of the Bibliography of Algæ were included with that of Cryptogamia in general, and appeared as follows:—

For 1884, 'Naturalist,' 1885, October, pp. 337-340.

„ 1885, „ 1886, June, pp. 180-181.

„ 1886-7, „ 1888, December, pp. 361-369.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts. ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; and 71, Isle of Man.

From a distributional point of view the papers cited here represent a large amount of excellent systematic work done, chiefly by Messrs. A. W. Bennett, Wm. Narramore, W. Barwell Turner, and William West, resulting in substantial additions to our knowledge of the algal floras of the Lake District, the Liverpool neighbourhood, and all the Ridings of Yorkshire.

ANON. [not signed].

Lanc. S.

Manchester Microscopical Society [at Hurst and Lees ; at former place a very scarce algæ, *Pithophora kewensis*, found in fruit, attached to pieces of decaying wood]. Research, October 1889, p. 94.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889. = Gorton [May 11th ; *Chaetophora* and *Volvox* noted]. 10th Ann. Rep. Manch. Micr. Soc., 1889, pub. 1890, p. 111.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889. . . . **Blackley** [July 27th ; *Volvox globator*, *Pediastrum granulatum*, *P. birdiatum*, *P. pertusum*, *Closterium moniliferum*, *C. radiatum*, *C. margaritifera*, *Cesterum lunula*, *Desmidium swartzii*, *D. aptogonium*, *Protococcus pluvialis*, *Gomphonema attenuatum*, *Tessella interrupta*, *Navicula*, *Pinnularia*, *Epithemia turgida*, *Gonium pectorale*, and *Spirogyra quinina* noted]. 10th Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, p. 116.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889. . . . Stalybridge [Stamford Park, Hurst and Lees, Aug. 24th; *Pithophora kewensis* (Hurst), *Navicula*, *Fragilaria rhabdosoma*, *Pinnularia viridis*, *P. grandis*, *Pleurosigma hippocampus*, *Gomphonema accuminatum*, *Nitzschia sigmoidea*, and *Closterium acerosum*, noted as found]. 10th Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, pp. 117-118.

C. R. BEAUMONT.

Lanc. S.

A Ramble Round Daisy Nook [near Oldham; the Fitton ponds yield *Volvox globator*]. Trans. Rochdale Lit. and Sci. Soc., Vol. 2, for 1889-90, pub. 1890, p. 71.

ALFRED W. BENNETT.

Westmorland and Furness, Cumberland.

Fresh-water Algæ (including Chlorophyllaceous Protophyta) of the English Lake District; with descriptions of twelve new species [recording the results of six weeks' investigation in August and early September 1885, in the district between Windermere and Langdale, Westmorland; 187 species catalogued for the Loughrigg tract, 9 for Ambleside, 3 for Wetherlam, 4 for Park Fell, 8 for the Furness Fells, 2 for the Yewdale Fells, 3 for above Easedale Tarn, one for Neaum Crag, Skelwith Bridge, two for the stream between Codale and Stickle Tarns, at 1,800 feet altitude, and one for Grisedale, Cumberland; the species figured are *Merismopedia? paludosa* Benn., *Nostoc hvalinum* Benn., *Pediastrum compactum* Benn., *Micrasterias cornuta* Benn., *Holocystis oscitans* Hass., *Euastrum multilobatum* Wood, *E. ornithocephalum* Benn., *E. lundellii* Benn., *E. crenatum* Ktz., *Cosmarium wittrockii* Lund., *C. oblongum* Benn., *Xanthidium spinulosum* Benn., *Staurastrum bullosum* Benn., *St. teliferum* Ralfs var. *convexa* Benn., *St. tuberculatum* Benn., *St. enorme* Ralfs, *Tetmemorus penioides* Benn., *Zygnema cruciatum* Cleve, *Z. hassallii* Benn., *Mesocarpus? neaumensis* Benn., and *Edogonium macrandrum* Wittr.]. Journ. of R. Micr. Soc., No. 50, Feb. 1886, pp. 1-15, and plates 1 and 2; reviewed in Notarisia, anno 1, N. 2, Aprile 1886, p. 104 [wherein is given a numerical summary and an enumeration of the new English species]; the list of 44 diatoms is reprinted in Notarisia, Anno 1, N. 4, Ottobre 1886, p. 218.

ALFRED W. BENNETT.

Lake District.

Fresh-water Algæ (including Chlorophyllaceous Protophyta) of North Cornwall; with descriptions of six new species [and a comparison throughout with his previously published list for the Lake District; 128 of the species are common to the two lists, 62 others are peculiar to Cornwall]. Journ. of R. Micr. Soc., Feb. 1887, pp. 8-19, and plates 3 and 4.

ALFRED W. BENNETT.

Cumberland, Westmorland.

Fresh-water Algæ (including Chlorophyllous Protophyta) of the English Lake District. II. With a description of a new genus [*Capsulococcus*] and five new species [being a record of 56 species gathered in Cumberland, in the lower part of Borrowdale, and near the southern end of Derwentwater, which were not included in the writer's first (or Loughrigg) list; *Acanthococcus anglicus*, *Capsulococcus crateriformis*, *Chroococcus pyriformis*, *Gomphosphæria (?) anomala*, and *Calothrix minuta* are described and figured as new to science, and three others as new to Britain, while three of the Loughrigg novelties or rarities are mentioned as found]. Journ. of R. Micr. Soc., Feb. 1888, pp. 1-6 and plate 1; abstract in Notarisia, Anno 3, N. 11, Luglio 1888, p. 569.

ALFRED W. BENNETT.

'Yorkshire,' Cumberland.

Fresh-water Algæ and Schizophyceæ of Hampshire and Devonshire [with mention of *Cosmarium homalodermum* Nordst., *Apiocystis brauniana* Näg., and *Cælastrum cubicum* Näg., being taken in Yorkshire by W. West; also of *Cosmarium sphericum* sp. nov., being taken in Cumberland by writer]. Journ. of R. Micr. Soc., Feb. 1890, pp. 1-10.

ALFRED W. BENNETT.

Cumberland, Westmorland.

Fresh-water Algæ and Schizophyceæ of South-West Surrey [with casual reference to the occurrence of *Trochiscia anglica* (Benn.) in Cumberland, and *Nostoc opalinum* Benn., in Westmorland]. Journ. of R. Micro. Soc., Feb. 1892, pp. 5-6.

JAMES CASH.

Cheshire.

The British Fresh-Water Rhizopoda [being notes on those occurring in the Manchester district; with mention of *Asterionella formosa* in abundance at Heatley, Cheshire]. Internat. Journ. of Micr., July 1892, p. 148.

E. MAULE COLE.

York S.E.

Peat Deposit at Filey [in which W. Cash and W. West identified *Calocylindrus palangula*, *C. debaryi*, *Penium truncatum*, *Cosmarium obliquum*, *Cylindrocystis diplospora*, *Penium brebissonii*, *Cosmarium homalodermum*, *C. globosum*, *C. crenatum*, *C. undulatum*, *Synedra ulna*, *Pinnularia acrosphæria*, *Merismopedia glauca*, *Conferva tenerrima*, etc.]. Nat., Jan. 1891, pp. 17-19.

M. A. COOKE.

York Mid W.

British | Fresh-water Algæ. | exclusive of | Desmidiæ and Diatomaceæ.

| By | M. C. Cooke, . . . | [two lines of titles] | Vol. I. Text. | Williams and Norgate, | [three lines of addresses] | — | 1882-1884 [8vo., pp. viii. + 329; and 'Vol. II. Plates,' with 130 plates; the north-country references are the following: *Urococcus allmanni* Hass., in springs at Knaresborough; and *Microthamnion vexator* Cke., first found by Mr. Turner in Yorkshire].

M. C. COOKE.

York Mid W. or S.W.

Notes on Palmodictyon subramosum [found by Thomas Hebden at Hainworth near Keighley, in July], and on a New British Species of *Vaucheria* [found at Kew]. Journ. of Quekett Micr. Club, No. 14, Feb. 1886, p. 219 and plate 14 fig. B; abstract in Notarisia, Anno 2, N. 7, Luglio 1887, p. 367.

Chesh., Westmd., York N.E., S.W., Mid. W.,

M. C. COOKE.

Lancs., Northumberland.

British Desmids. | A Supplement to | British Fresh-water Algæ. | — |

With 66 Coloured Plates. | — | By | M. C. Cooke, . . . | [5 lines of titles] | — | Williams and Norgate, | [3 lines of addresses] | — | 1887 [8vo., xiv. + 205 pages + 66 plates; the north-country notes are as follows:— For Strensall Common near York, *Onychonema nordstedtiana* Turn.; for Westmorland, *Sphærozosma vertebratum* Ralfs, *Desmidium quadrangulatum* Ralfs, *D. aptogonium* Bréb. vars. α and β , *Docidium ehrenbergii* Ralfs, *D. nodulosum* Bréb., *Closterium didymotocum* Corda var. β *baileyana* Bréb., *Cl. lanceolatum* Kutz., *Cl. costatum* Corda, *Cl. angustatum* Kutz., *Cl. attenuatum* Ehr., *Cl. cornu* Ehr., *Penium margaritaceum* Bréb. var. γ *punctata* Ralfs, *P. cylindrus* Bréb., *P. interruptum* Bréb., *Tetmemorus brebissonii* Ralfs, *Spirotenia condensata* Bréb., *Micrasterias* (*Tetrachastrum*) *oscitans* (Hass.), *M. furcata* Ag., *M. papillifera* Bréb., *M. truncata* (Corda), *Euastrum verrucosum* Ehr., *E. affine* Ralfs, *E. ampullaceum* Ralfs, *E. insigne* Hass., *E. didelta* Ralfs, *E. sinuosum* Lenor, *E. jenneri* Archer, *E. gemmatum* Kutz., *E. rostratum* Ralfs, *E. binale* Ralfs, *Cosmarium sublobatum* (Bréb.), *C. cucumis* Corda, *C. phaseolus* Bréb., *C. tetraophthalmum* Bréb., *C. ovale* Ralfs, *C. amœnum* Bréb., *C. ornatum* Ralfs, *C. cristatum* Ralfs, *C. orbiculatum* Ralfs, *Calocylindrus connatus* Kirchn., *Xanthidium armatum* Bréb., *X. cristatum* Bréb. and var. β *uncinatum* Bréb., *Arthrodesmus octocornis* Ehr. and var. α *simplex* Ralfs, *A. incus* Hass., *Staurastrum pterosporum* Lund., *St. armigerum* Bréb., *St. maamense* Archer, *St. muticum* Bréb., *St. muricatum* Bréb., *St. alternans* Bréb., *St. quadrangulare* Bréb., *St. brachiatum* Ralfs, *St. tricornis* (Bréb.), *St. polymorphum* Bréb., *St. paradoxum* Meyen, *St. controversum* Bréb., *St. aculeatum* Meneg., *St. margaritaceum* Meneg., *St. tetracerum* Ralfs, and *Micrasterias apiculata* (Ehr.); for Loughrigg (Lake District), *Euastrum multilobatum* Wood, *E. binale* var.

elobata Lund., and *E. ornithocephalum* Benn. ; for Campsall, Doncaster, and Chapeltown, Leeds, *Closterium eboracense* Turn. ; for Windermere, *Penium lagenarioides* Roy ; for Bowness, Windermere, *Micrasterias brachyptera* Lund. ; for Ambleside, *Cosmarium logiense* Bisset ; for Lake District and Lancashire, *Cosm. crenatum* Ralfs ; for West Yorkshire and Lake District, *Staurastrum meriani* Reinsch ; for the Lake District, *Micrasterias cornuta* Benn., *Euastrum ventricosum* Lund., *E. erosum* Lund., *E. crenatum* Kutz., *Cosmarium nymannianum* Grun., *C. variolatum* Lund., *C. pachydermum* Lund., *C. pseudopyramidatum* Lund., *C. pygmæum* Archer, *C. meneghinii* Bréb., *C. angulosum* Bréb., *C. holmiense* Lund., *C. undulatum* Corda, *C. tetragonum* Näg., *C. monomaxum* Lund. var. β *polymazon* Nordst., *C. brebissonii* Meneg., *C. conspersum* Ralfs, *C. latum* Bréb., *C. portianum* Archer, *C. reniforme* Archer, *C. punctulatum* Bréb., *C. sportella* Bréb., *C. præmorsum* Bréb., *C. ochthodes* Nordst., *C. boeckii* Wille, *C. cælatum* Ralfs, *C. kjellmanni* Wille, *C. isthmochondrium* Nordst., *C. cyclicum* Lund., *C. speciosum* Lund., *C. subspeciosum* Nordst., *C. wittrockii* Lund., *C. jacobseni* Roy, *C. parvulum* Bréb., *Calocylindrus annularis* De Bary, *C. oblongus* (Benn.), *C. pseudo-connatus* Nordst., *C. thwaitesii* Ralfs, *C. turgidus* Kirch., *C. debaryi* (Archer), *Xanthidium spinulosum* Bennett, *X. cristatum* Bréb. var. *a reniforme* Ralfs, *Staurastrum dickiei* Ralfs, *St. lævispinum* Bisset, *St. avicula* Bréb., *St. monticulosum* Bréb., *St. reinschii* Roy, *St. tuberculatum* Benn., *St. brebissonii* Archer, *St. teliferum* Ralfs var. β *convexa* Benn., *St. pringsheimii* Reinsch, *St. bullosum* Benn., *St. asperum* Bréb., *St. capitulum* Bréb. var. *spetzbergense* Nordst., *St. kjellmanni* Wille, *St. tumidum* Bréb., *St. inflexum* (Bréb.), *St. vestitum* Ralfs, *St. oxyacanthum* Archer, and *St. leve* Ralfs ; for Lancashire, Westmorland, and Yorkshire, *Docidium baculum* Bréb. ; for Cheshire, Westmorland, and Lancashire, *Closterium lunula* Ehr., *Cl. acerosum* Ehr., *Cosmarium pyramidatum* Bréb., *Xanthidium fasciculatum* Ehr., and *Staurastrum furcigerum* Bréb. ; for Cheshire and Westmorland, *Closterium turgidum* Ehr., *Cl. dianæ* Ehr., *Cl. juncidum* Ralfs, *Cl. rostratum* Ehr., *Micrasterias crux-melitensis* (Ehr.), *Euastrum pectinatum* Bréb., and *Calocylindrus cucurbita* DeBary ; for Yorkshire, *Mesotienium greyi* Turn. ; for Lancashire, West Yorkshire, and Westmorland, *Staurastrum hirsutum* Bréb. ; for Cheshire, Westmorland, Lancashire, and Yorkshire, *Arthrodesmus convergens* Ehr. ; for Westmorland and West Yorkshire, *Staurastrum teliferum* Ralfs, *St. orbiculare* Ralfs, *St. punctulatum* Bréb., and *St. dilatatum* Ehr. ; for Lancashire and Westmorland, *Sphærozozoma excavatum* Ralfs, *Bambusina brebissonii* Kutz., *Closterium ralfsii* Bréb., *Tetmemorus granulatus* Ralfs, *Cosmarium botrytis* Meneg., *Staurastrum dejectum* Bréb., and *St. gracile* Ralfs ; for Yorkshire and Northumberland, *Closterium aciculare* West ; for West Yorkshire, *Staurastrum pilosum* Näg. ; for Cheshire, Yorkshire, and Lancashire, *Closterium leibleinii* Kutz. ; and for Lancashire, *Desmidiium cylindricum* Grev., *Closterium lineatum* Ehr., *Cl. acutum* Bréb., *Tetmemorus penioides* Bennett, *Cosmarium moniliforme* (Turp.), and *Staurastrum cuspidatum* Bréb.].

M. C. COOKE.

Yrok Mid W.

Introduction | to | Fresh-Water Algæ | with an | enumeration of all the
| British Species | By | M. C. Cooke, . . . | [two lines of titles] | with
thirteen plates | illustrating all the genera | London | Kegan Paul, Trench,
Trübner & Co., Ltd. | 1890 [being Vol. 69 of the International Scientific
Series ; 8vo., viii. + 339 pages + 13 plates ; *Urococcus allmani* (Hass.) in
springs at Knaresborough].

CHAS. CROSSLAND.

York S.W.

Cylindrospermum macrospermum near Halifax [in Mapledean Clough,
Norland]. Nat., Nov. 1889, p. 339.

GEO. E. DAVIS.

Lanc. S.

Queer Plants [*Volvox globator* noted as found in 'many ponds in this
neighbourhood' (no doubt Manchester is meant)]. Ann. Rep. Manch.
Microsc. Soc. for 1884-85, pub. 1885, p. 1.

Naturalist,

- G. B. DETONI E DAVID LEVI-MORENOS [not signed]. **Furness.**
Algæ Novæ Anno 1885 Editæ [*Micrasterias brachyptera* var. *bispinata* Turn., Bowness (p. 31); *M. crux-melitensis* var. *superflua* Turn., Bowness, Windermere (p. 32)]. *Notarisia*, Gennaio 1886, Ann. 1, No. 1, pp. 31-32.
- G. B. DETONI E DAVID LEVI-MORENOS [not signed]. **York N.E., Westmorland and Furness.**
Algæ Novæ [reproduction of descriptions of *Peperidium strum compactum* Bennett (Loughrigg), *Euastrum lundellii* Benn. (do.), *E. ornithocephalum* Benn. (do.), *Mesocarpus*? *neaumensis* Benn. (Neaum Crag, Skelkith Bridge), *Mesotænium degreyi* Turn. (Strensall Common), *Micrasterias cornuta* Benn. (rivulets from Codale and Stickle Tarns, alt. 1,800 ft.), *Stauroastrum bullosum* Benn. (Loughrigg), *S. teliferum* var. *convexum* Benn. (stagnant waters of Britain), *S. tuberculatum* Benn. (Loughrigg), *Tetmemorus penioides* Benn. (among *Sphagnum*, Furness Fells, Lancashire), *Xanthidium spinulosum* Benn. (rivulets from Codale and Stickle Tarns, alt. 1,800 ft. = circ. 540 metres), *Merismopædia*? *paludosa* Benn. (Loughrigg), and *Nostoc hyalinum* Benn. (do.)]. *Notarisia*, N. 2, Aprile 1886, Ann. 1, pp. 77, 89, 91, 96-98.
- G. B. DETONI E DAVID LEVI-MORENOS [not signed]. **Cumberland.**
Algæ Novæ [*Glochiococcus anglicus* (Benn.) De Toni et Lev. = *Acanthococcus anglicus* Benn. in *Journ. R. M. S.* 1888, p. 2, t. I., f. 4, in sphagnetis pr. Borrowdale]. *Notarisia*, Anno 3, No. 10, Aprile 1888, p. 457.
- Cumberland, ? Westmorland.**
- G. B. DETONI E DAVID LEVI-MORENOS [not signed].
Algæ Novæ [*Capsulococcus crateriformis* Benn., in stagnis paludosis ad Barrowdale in Britannia (524); *Stauroastrum spongiosum* v. *cumbricum* Benn., in stagnis muscosis pr. Borrowdale (528); *Euastrum rostratum* v. *cumbricum* Benn., in stagnis paludosis Britanniae (528); *Calothrix*? *minuta* Benn., verisimiliter epiphytica in stagnis paludosis pr. Borrowdale Britanniae (528); *Chroococcus piriformis* Benn., in stagnis pr. Derwentwater (528); and *Cælosphaerium*? *anomalum* (Benn.) De Toni et Levi, in stagnis et paludosis ad Bowderstone in Britannia (528)]. *Notarisia*, Anno 3, N. 11, Luglio 1888, pp. 524, 528.
- GIO. BATT. DE-TONI E DAVID LEVI-MORENOS. **York N.E. and N.W.**
Algæ Novæ [including *Arthrodesmus bifidus* Bréb. var. *truncatus* West, Strensall, *Cosmarium cyclicum* Lund. var. *angulatum* West, *C. lepidum* West, *Gonatozygon westii* De-Toni, *Stauroastrum acarides* Nordst. vars. *hexagonum* West and *eboracense* West, and *S. avicula* Bréb. var. *aciculiferum* West, all from Mickle Fell, and *Cosm. eboracense* West, and *C. granulatum* West, both from Cronkley Fell]. *Notarisia*, Anno 4, N. 16, Ottobre 1889, pp. 847-852.
- G. B. DE TONI [not signed]. **? York S.E., Linc. N.**
Diagnoses Algarum Novarum [*Coscinodiscus obovatus* Castr. var. *circularis* Rattr., *Revis. Cosc.* 1890, p. 90, ad 'Humber' (O'Meara)]. *Nuova Notarisia*, 1 Agosto 1890, p. 182.
- HILDERIC FRIEND. **Notts, York S.W.**
Notes on the Flora of North Notts [including one on *Hildenbrantia rivularis* at Carlton-in-Lindrick and Anston Crag]. *Trans. and 35th Rep. Nottingham Nat. Soc.* for 1887, publ. 1888, p. 33.
- HILDERIC FRIEND. **Notts, York S.W.**
The Flora of the District [of Sherwood Forest and the Dukeries; noting *Hildenbrantia rivularis* at Elksley, Anston, and Carlton]. *Sissons' 'Beauties of Sherwood Forest'*; a Guide to the 'Dukeries' and Worksop, 2nd Ed., 1888, p. 135. [First Ed. not seen.]
- HILDERIC FRIEND. **Notts, York S.W.**
[Review of] The Flora of West Yorkshire [noting that *Hildenbrantia* was first recorded in the *Wesley Nat.* for Yorkshire and not for Notts]. *Wesley Nat.*, May 1888, p. 75.

HILDERIC FRIEND.

Cumberland.

Solway Dunes [at Silloth] in April [*Cylindrospermum macrospermum* mentioned]. Sci. Goss., June 1889, pp. 125-126.

HILDERIC FRIEND.

Cumberland.

Silloth in June [*Cylindrospermum* and *Pinnularia viridis* noted as occurring]. Sci. Goss., June 1889, p. 156.

THOMAS HICK.

Lanc.

S., York Mid W., N.E., and S.W.

Ludvig Klein on the genus Volvox [of which there are two species, *V. globator* and *V. aureus*, which occur at Rawcliffe near Goole, Askham Bog near York, near Wetherby, at Strensall Common, and the south side of Manchester; full diagnostic and physiological details given, and botanists urged to assist in working out the problems]. Nat., March 1890, pp. 87-91.

THOMAS HICK.

York S.W.

Volvox in Yorkshire [an interesting account of the occurrence of *V. globator* and *V. aureus* at Midgley Moor and Salterhebble near Halifax and at Thornhill Lees; also at Rawcliffe, the latter being the prevalent form, as it is also round Manchester]. Nat., June 1891, pp. 167-170.

THOMAS HICK.

Lanc. S., Chesh., York S.W.

Volvox [giving details of local distribution and associated forms of life, of *V. globator* and *V. aureus* in South Lancashire and Cheshire, and also at Midgley Moor near Halifax; *V. aureus* is the dominant species round Manchester]. Trans. and Ann. Rep. Manch. Microsc. Soc., 1891, pp. 1-7 of reprint.

C. P. HOBKIRK.

York S.W.

[Algæ observed by] The Yorkshire Naturalists' Union at Holmfirth [10th June, 1889; *Conserva tenerrima*, *Ulothrix tenerrima*, *U. variabilis*, *Spirogyra flavescens*, and *Spirulina tenuissima*, noted as observed]. Nat., July 1889, p. 204.

J. M. KIRK.

York S.W.

Microscopic Life at Askern, May 20th, 1886 [included *Frustulia saxonica*, *Diademesmis confervacea*, *Diatoma vulgare*, *Nitzschia sigmoidea*, *Cymatopleura solea*, *Cocconema lanceolatum*, *Fragilaria capucina*, *Gomphonema acuminatum*, *Closterium*, *Cosmarium*, and *Pediastrum*]. Nat., July 1886, p. 213.

J. M. KIRK.

York S.W.

[Algæ observed by] The Yorkshire Naturalists' Union at Hatfield Chace [21st Sep., 1887; diatoms noted, *Navicula cuspidata*, *Pleurosigma*, *Frustulia olivacea*, *Fragilaria capucina*, *Nitzschia sigmoidea*, *Cymatopleura solea*, *Cocconema lanceolatum*, *Diatoma vulgare*, *Diademesmis confervacea*, *Gomphonema acuminatum*, and *Pinnularia nobilis*; desmids noted, *Closterium acerosum*, *C. moniliferum*, and *Cosmarium margaritifera*; and *Volvox globator* in abundance]. Nat., March 1888, p. 89.

J. M. KIRK.

York Mid W.

[Algæ observed by] The Yorkshire Naturalists' Union at Harrogate [13th July, 1889; of Conservoids, *Volvox globator* (very few); of Diatoms, *Diatoma vulgare*, *Pinnularia oblonga* and a *Navicula* closely resembling the marine *N. didyma*; of Desmids, *Cosmarium crenatum*, *Tetmemorus granulatus*, *Micasterias rotata*, *Closterium moniliferum* and *Cl. lunula*]. Nat., Aug. 1889, p. 244.

J. M. KIRK.

York N.W.

Micro-Fauna and Micro-Flora of Upper Teesdale, September [24th], 1889 [four gatherings made by E. P. Knubley in Yorkshire stations yielded of Diatoms, *Diatoma vulgare*, *Gomphonema acuminatum*, *Achnanthes longipes*, *Pinnularia oblonga*, *P. viridis*, *Pleurosigma attenuatum*, *Fragilaria capucina*, *Epithemia turgida*, *Cocconema lanceolatum*, *Cymbosira agardii*, *Amphipleura pellucida*, *Nitzschia lanceolata*, *N. reversa*, and *Frustulia saxonica*; of Desmids, *Cosmarium crenatum*, *C. tetraophthalmum*, *C. margaritifera*, *C. pyramidatum*, *Closterium moniliferum*, *Cl. acerosum*, *Cl. lunula*, and *Tetmemorus granulatus*]. Nat., Oct. 1889, p. 292.

Naturalist.

- J. M. KIRK. York S.E.
[Algæ observed by] The Yorkshire Naturalists' Union at Kirkham Abbey and Acklam Brow [4th Sep., 1889; the Diatoms observed were various *Pinnulariæ*, the Desmid *Closterium lunula*, and the Conservoids *Gonium pectorale*, and spores of *Volvox globator*]. Nat., Nov. 1889, p. 343.
- J. M. KIRK. York Mid W.
[Diatoms and Desmids observed by] the Yorkshire Naturalists' Union at Malham [Cove] and Gordale [Scar; 11th Sep., 1890: *Amphora ovalis*, *Meridion circulare*, *Cocconeis lanceolatum*, *Odontidium turgidum*, *Synedra capitata*, *Pinnularia oblonga*, *Euastrum didelta*, *Penium margaritaceum*, *Docidium truncatum*, *Nitzschia sigmoidea*, *Fragilaria capucina*, *Synedra radians*, and *Denticula obtusa*]. Nat., June 1891, p. 177.
- FREDERIC ARNOLD LEES. York Mid W., N.W. and S.W.
The Flora | of | West Yorkshire | with a | sketch of the climatology and lithology in | connection therewith . . . London: | . . . |—| 1888 [8vo.; 382 species of Algæ catalogued at pp. 743-777 and 814-815, with introductory remarks].
- H. W. LETT. Notts.
New British Alga [*Hildenbrandtia rivularis* (Lieber) J. Ag., incrusting the stones of the Poulter Stream near Retford]. Grevillea, June 1887, p. 121; abstract in Notarisia, Ottobre 1887, Anno. 2, No. 8, p. 359.
- J. E. LORD. Lanc. S.
[Batrachospemum moniliforme very plentiful in locality for] Free Swimming Rotifers [presumably at Rawtenstall]. Science Gossip, June 1884, pp. 124-125 and woodcut.
- J. E. LORD. Lanc. S.
Bacillaria paradoxa [found at Rawtenstall although place not named; habitat and altitude stated]. Internat. Journ. of Micr., Ap. 1892, p. 133.
- R. T. MANSON. Durham.
Zig-Zag Ramblings by a Naturalist [round Darlington; *Oscillatoria contexta* at Dinsdale Dam (p. 52)]. Small 8vo., Darlington, 1884.
- WM. NARRAMORE. Lanc. S., Cheshire.
Fresh-water Algæ: Chætophoraceæ [the two species *Chætophora elegans* and *C. pisiformis* found freely on both sides of the Mersey near Liverpool, on the Cheshire side in particular]. Wesl. Nat., Ap. 1888, p. 49.
- WM. NARRAMORE. Lanc. S., Cheshire.
Fresh-water Algæ.—Batrachospermeæ [which are rare on both sides of the Mersey near Liverpool]. Wesl. Nat., June 1888, pp. 119-121.
- WM. NARRAMORE. Lanc. S., Cheshire.
Fresh-water Algæ.—Volvocineæ [*Volvox globator* unusually plentiful, near Liverpool presumably, in 1888, whereas it was very scarce in 1887]. Wesl. Nat., July 1888, p. 151.
- WM. NARRAMORE. Cumberland, Lanc. S., York S.W.
Fresh-water Algæ—Cylindrospermum [macrospemum, at Silloth, near the sea (H. Friend), at Fairfield near Liverpool, and at Dewsbury; the plant described]. Wesl. Nat., Jan. 1889, p. 343.
- WM. NARRAMORE. Lanc. S.
Vaucheria and a Parasitic Rotiferon [account of specimens of *Vaucheria dichotoma* from the Leeds and Liverpool Canal near Kirkby, and remarks on *V. sessilis* from a pit near Sheil Road, Fairfield; treated at great length and illustrated by four figures]. Research, March 1890, pp. 195-199.
- WM. NARRAMORE. Lanc. S., Cheshire.
List of the Fresh-water Algæ of the Liverpool District [enumerating 176 species with localities and introductory remarks]. Trans. Liverp. Biol. Soc., Vol. 5, 1890-91, publ. 1891, pp. 272-291, and plates 16-17.

- J. I. NEWTON. Lanc. S.
Rambles during the Year 1887.—Ashton-under-Lyne [30th July; *Bulbochæte setigera*, *Plectonema mirabilis*, *Chætophora elegans*, *Coleochaeta oribicularis* (sic), *Nostoc ceruleum* (sic), *Volvox globator*, *Rivularia echinata*, *Apiocystis brauniani* (sic), *Merismopedia glauca*, and *Botryococcus braunii* noted in ponds near Ashton Moss]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, pp. 66-67.
- J. I. NEWTON. Lanc. S., Chesh., Derbyshire, York S.W.
A Terrestrial Alga—*Prasiola crispa* [= *Schizogonium murale*]: Its Structure and Development [discussed; occurs near Audenshaw reservoirs, also on Marple Edge, Mossley, etc.; details given]. Tenth Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, pp. 46-49 and plate.
- E. P. QUINN. Cheshire.
Rambles during the Year 1887.—Ashley [June 11th; *Volvox globator* noted in the ponds]. Ann. Rep. Manch. Microsc. Soc. for 1887, publ. 1888, pp. 63-64.
- WILLIAM STANLEY. Lancs. S.
First Forms of Vegetable Life [with a passing reference to *Palmella cruenta* or 'gory dew' being very plentiful on the walls of Heaton Park a few years ago]. Ann. Rep. Manch. Microsc. Soc. for 1886, pub. 1887, p. 61.
- M. L. SYKES. Lanc. S.
Rambles during the Year 1887.—Worsley [Aug. 27th; *Volvox* in great abundance]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, p. 68.
- W. BARWELL TURNER. York Mid W. and N.E.
Notes on Fresh-water Algæ [from Blubberhouses and Strensall]: with descriptions of new species [see abstract in Bibl. for 1886, Nat., Dec. 1888, p. 368]. Nat., Feb. 1886, pp. 33-35, and plate 1; reviewed by G. Paoletti in Notarisia, N. 2, Aprile 1886, Anno 1., p. 102; and by F. Wolle, in Bull. Torrey Bot. Club, April 1886, p. 56.
- W. BARWELL TURNER. York S.W.
Microscopic Life [observed] near Askern [on May 20th, 1886; *Pinnularia*, *Navicula*, *Diatoma elongatum*, *Cosmarium crenatum*, *C. pyramidatum*, *Closterium lunula*, *Cl. acerosum*, *Cl. eboracense* (new species), *Pleurococcus roseo-persicinus*, *Pandorina morum*, *Gonium pectorale*, and *Chlorosphaera oliveri* noted, with localities and remarks]. Nat., Sep. 1886, p. 279.
- W. BARWELL TURNER [not signed]. York Mid W. and S.W.
Algæ (exclusive of Diatomaceæ). Area: West Yorkshire [a list of 214 species collected by James Abbott, F. Emsley, T. Hick, J. Stubbins, W. B. Turner, and W. West; localities and authorities stated]. Trans. Leeds Nat. Club, 1886, pp. 69-78, and plate 1; noted in Notarisia.
- W. B. TURNER. York N.E.
Notes on Algæ collected at Gormire and Thirkleby, with Notice of a New Form [see Bibl. for 1887, in Nat., Dec. 1888, pp. 368-9]. Nat., Sep. and Oct. 1887, pp. 275-6, and 290; list repeated in Notarisia, Anno 3, No. 9, Gennaio 1888, p. 416.
- J. STANLEY TUTE. York Mid W.
Microscopic Fauna and Flora of Markington, Mid West Yorkshire [note on *Volvox*; List of 63 freshwater algæ, diatoms, and desmids given, with localities, one from Gordale Scar (*Protococcus viridis*)]. Nat., May 1890, pp. 151-156; bibliographic abstract—referring in particular to *Ophiocytium majus*—given by D. L[evi]. M[orenos]. in Notarisia, Anno 5, N. 19, 30 Giugno 1890, p. 1,041.
- CHAS. H. H. WALKER. Cheshire.
Microscopical Notes [on Cheshire side of Mersey, 25th May; *Volvox globator*, *Closterium lunula*, and *Protococcus pluvialis* noted]. Young Nat., Sep. 1889, pp. 186-188.

WM. WEST.

York Mid W., N.W., and S.W.

Additions to the Algæ of West Yorkshire [an important paper giving localities for 257 species, including 100 species and 11 varieties and forms additional to Lees' West Yorkshire list, raising the total number on record to 481 species and 26 varieties and forms; the list is preceded and followed by important observations]. Nat., March and April 1889, pp. 87-100.

W. WEST.

York N.W.

Algæ in Upper Swaledale [collected by W. Denison Roebuck at 1,620 feet on Birkdale Tarn Moss, 1888; *Polyedrium gigas*, *Ophiocytium cochleare*, *Penium brebissonii*, *Cylindrocystis diplospora*, *C. crassa*, *Tetmemorus granulatus*, *Micrasterias papillifera*, *Cosmarium obliquum*, *Calocylindrus cucurbita*, *Staurostrum avicula*, *S. polymorphum*, *S. margaritaceum*, *Spirogyra longata*, *Microspora fugacissima*, *M. floccosa*, *Chroococcus turgidus*, *Navicula rhomboides*, *N. affinis*, *Pinnularia viridis*, and *P. acrosphæria*]. Nat., Aug. 1889, p. 246.

WILLIAM WEST.

York N.W. and N.E.

The Fresh-water Algæ of North Yorkshire [a full list of 427 species and 20 varieties, which brings up the total to 491 species and 30 varieties; references given to previous papers on the subject]. J. of Bot., Oct. 1889, pp. 289-298, and plate 291; summarised and the new forms enumerated by De-Toni and Levi-Morenos in Notarisia, Anno 4, N. 16, Ott. 1889, p. 861.

WM. WEST.

Cumberland.

Sciadium Arbuscula A. Braun [found by writer on *Myriophyllum* from Crummock Water in fine examples, early part of summer 1889]. J. of Bot., Ap. 1890, p. 121.

WM. WEST.

Westmorland, York S.E., N.E. and W.

Contribution to the Fresh-water Algæ of North Wales [with records of *Gonatozygon minutum* sp. nov., collected by writer at Brothers Water, Westmorland, and at Riccall, East Yorkshire, variability of *Penium spirostriolatum* Bark., at Scandale in the Lake District, *Staurostrum cumbicum* sp. nov., first noticed in a gathering from Lindeth in Westmorland a few years since, *S. muricatum* Bréb. var. nov. *acutum* in North Yorkshire, *Apiocystis brauniana* Näg. gathered by writer at Scarborough Mere and Brothers Water; also on record for two West Riding localities, *Urococcus insignis* (Hass.) from Yorkshire and the Lake District, and *Inactis tinctoria* Thur. on *Myriophyllum* from the Lake District]. J. of R. Micr. Soc., June 1890, pp. 277-305 and plates 5-6.

WM. WEST.

York Mid W. and S.W.

Additions to the Fresh-water Algæ of West Yorkshire [giving 70 species and varieties as new for the Riding, and many fresh stations for nearly 150 previously recorded ones, and bringing up the total number known to 540 species and 37 varieties and forms]. Nat., Aug. 1891, pp. 243-252.

WM. WEST.

Cumberland, Westmorland, Furness.

Algæ of the English Lake District [enumerating and giving localities for 589 species and 78 varieties, one genus, 21 species and 23 varieties being described as new to science, and 27 species and 10 varieties brought forward as new for the British Isles]. Journ. of R. Micr. Soc., Dec. 1892, pp. 713-748, and plates 9-10.

NOTE—MAMMALIA.

Occurrence of *Mus rattus* at Hull.—At a meeting of the Hull Scientific Club held last month a preserved specimen of the old English Black Rat (*Mus rattus*) was exhibited by Mr. J. W. Boulton. Mr. Boulton stated that he was present when it was killed in the preceding week at the Corporation Works, in Chapman Street, Hull.—F. W. FIERKE, Hon. Sec., Hull, 30th March, 1895.

May 1895.

NOTE—LEPIDOPTERA.

Melanic *Phigalia pilosaria* at Huddersfield.—Fine specimens of the unicolorous very dark olive-green form of *Phigalia pilosaria* (commonly known as the 'black form') were taken in the Lepton and Farnley Mill Woods, here, by Messrs. W. Tunstall, F. Netherwood, and myself during March of this year. The form seems to be increasing and spreading in West Yorkshire.—GEO. T. PORRITT, April 9th, 1895.

NOTES AND NEWS.

We have pleasure in noting the publication during the past year of a paper by our friend Mr. Osmund W. Jeffs, entitled 'Notes on a Series of Fossil Footprints from Storeton, in Cheshire.' It is illustrated by three excellent photographs—and is reprinted from the Journal of the Liverpool Geological Association for 1893-4.

The decease of Alban Edward Lomax, at Liverpool, on the 4th of May last is noted in the December Journal of Botany. He was a pharmaceutical chemist, and died at the untimely age of 33. He was an active botanist, devoting his holidays to such unfrequented localities as Spain, and his valuable herbarium has, since his death, been acquired by the University of Liverpool.

The Journal of the Linnean Society (Botany), No. 208, which came out last July, contains a paper by Mr. Wm. West, F.L.S., assisted by his son, Mr. G. S. West, A.R.C.S. (by whom the plates are drawn), dealing with some Freshwater Algæ from the West Indies, about 60 species, of which 11 are new to science. They were collected by Mr. W. R. Elliott on the islands of Dominica and St. Vincent in 1892.

As not all of the readers of the 'Naturalist' take also the 'Journal of Botany,' it may be of interest to some of them, to call attention to a record already made in August, 1894, issue of the latter, of the discovery in Lancashire of the elegant variety *angustifolia* Meyer of *Sonchus arvensis* L. In August 1893, Mr. William Whitwell, F.L.S., by whom the note was written, collected it on the sand-banks which form the coast just north of Blundellsands, between Liverpool and Southport. The ordinary form occurred in the same locality. The record is an entirely new one for the west coast of Britain, and on the east coast the variety has hitherto been found only in one locality—Wells, in Norfolk. Its occurrence there is noted in the Transactions of the Norfolk and Norwich Naturalists' Society for 1886, page 255, Dr. Long being the discoverer. Mr. Whitwell's specimens were named by Mr. Arthur Bennett, as also were the original ones from Wells.

It is refreshing to note the vigour and enthusiasm with which science is pursued in Manchester, and the 'Report of the Manchester Museum' at Owens College, which has just been issued, and covers the history of a little over four years, is confirmatory evidence of the fact. It is a special pleasure to note in such a journal as ours a statement that it is 'found very desirable to bring the museum into as intimate relation as possible with all the working naturalists of the neighbourhood for purposes of mutual assistance,' an enlightened and sagacious policy that we could wish were acted upon everywhere. It is a satisfaction to note how well the museum is staffed, and to remark upon the frequent mention of valuable and useful gifts and purchases, many of which bear most appropriately the name of their collector or donor. The appendices give full lists of the accessions, and also a list of societies, clubs, and classes who have visited the museum, whereby it appears that its value is well appreciated by such bodies in the Manchester district.

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?) - 1893.

LISTER PETTY,
Ulverston.

SIXTH PAPER.

- Trifolium pratense** L. Clarke's First Record, 1562.
1864. Linton, Lake Country, 321. No locality. 1874. J. of B., Miss E. Hodgson. No locality.
- Trifolium medium** L. C.F.R., 1660.
1874. J. of B., Miss E. Hodgson. No locality.
- Trifolium arvense** L. C.F.R., 1548.
1885. Baker's Flora, 69. Border of a field at Cark, F. A. Lees.
- Trifolium striatum** L. C.F.R., 1660.
1885. Baker's Flora, 70. Near Grange-over-Sands, C. Bailey.
- Trifolium hybridum** L.
1874. J. of B., Miss E. Hodgson. No locality.
- Trifolium repens** L. C.F.R., 1632.
1864. Linton, Lake Country, 321. 'Common,' no locality.
1874. J. of B., Miss E. Hodgson. 1,500 feet on Walna Scar.
1885. Baker's Flora, 69. Miss Hodgson repeated.
- Trifolium fragiferum** L. C.F.R., 1629.
1885. Baker's Flora, 70. Sand-hills near Barrow-in-Furness, W. Foggitt.
- Trifolium agrarium** L.
1885. Baker's Flora, 70. Clover fields at Plumpton, near Ulverston, Miss E. Hodgson.
- Trifolium procumbens** L. C.F.R., 1632.
1864. Linton, Lake Country, 321. 'Common,' no locality.
1874. J. of B., Miss E. Hodgson. No locality.
- Trifolium dubium** Sibth. *T. minus* Relhan. C.F.R., 1660
1864. Linton, Lake Country, 321 (as *filiforme*). 'Common,' no locality. 1874. J. of B., Miss E. Hodgson (as *minus* Relh.). No locality. 1885. Baker's Flora, 70 (as *minus*). Mr. Baker states that he has never seen a specimen of *filiforme* from the Lake District, although some of the old Floras contain the name.
- Anthyllis Vulneraria** L. C.F.R., 1597.
Anthyllis leguminosa. Circ. 1680; see 1889.
1805. West. Antiq., ed. Close, 376. Ellerscales, near Dalton, Atkinson. 1842. Evans, Furness and Furness Abbey, 23. Atkinson repeated. 1843. Jopling, Furness and Cartmel, 262. On the shore near Conishead Priory, Aiton. 1861. Phytologist, 237. Humphrey Head, C. J. Ashfield, and on p. 259 the same locality by Dr. Windsor.

1869. Aspland's Guide. Within six miles of Grange, A. Mason.

1874. J. of B., Miss Hodgson. No locality for type, but [*A. Dillenii* Sch. Hampsfell]. **1885.** Baker's Flora, 67. Humphrey Head and woods between Grange and Lindale, J. G. Baker. Hampsfell, Leybarrow Crag, and in the Park at Dalton-in-Furness, Miss E. Hodgson. **1889.** Westm. Note-book, 184. Mr. Martindale's extracts from Lawson's Note-book, circ. 1680. 'Dunnerholme, *copiose*,' Lawson. **1890** and **1893.** The Grange Guides, on the Hampsfell and other localities.

Lotus corniculatus L.

C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 260. In exposed pastures in Furness and Cartmel. Plentiful on shore near Conishead Priory, Aiton and Wilson. **1864.** Linton, Lake Country, 321. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 71. No locality, but 'everywhere common in grassy places.'

? **Lotus crassifolius** Pers.

1885. Baker's Flora, 71. 'A var. with fleshy leaves on the shore at Flookborough,' J. G. Baker.

Lotus villosus C. & G.

1874. J. of B., Miss E. Hodgson. 'A villose var. at Sandy Gap and Biggar Marsh, Isle of Walney.' **1885.** Baker's Flora, 71, Miss Hodgson repeated.

Lotus tenuis W. & K.

1873. Rep. Bot. Ex. Club, 18. Meadow west side of Humphrey Head. **1883.** Naturalist, 234, repeated.

Lotus uliginosus Schk.

C.F.R., 1630.

= (*L. pilosus* Beek. of Lond. Cat.).

1864. Linton, Lake Country, 321, as *L. major* Scop. Common. No locality. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 71. 'Ascends from shore swamps at Flookborough.'

Astragalus glycyphyllos L.

C.F.R., 1570.

Astragalus luteus perennis procumbens, vulgaris sive sylvestris.
Ray. Syn.

1744. Wilson, Syn., 207. Near Cartmel Physic Well. And repeated in **1775.** Jenkinson, Brit. Plant, 177. **1778.** S. Robson, Flora, 135. **1805.** Turner and Dillwyn, Bot. Guide, ii., 371. Locality repeated, but ascribed to Robson. **1835.** Watson, N.B.G., i., 300. Locality repeated, but ascribed to 'B.G.' **1842.** Wordsworth's Scenery, 27. Humphrey Head, T. Gough. **1885.** Baker's Flora, 71. Wilson repeated; 'Recent confirmation wanted.' **1888.** Westm. Note-book, 77. Wilson repeated in full in Martindale's 'Early Westm. Records.'

Ornithopus perpusillus L. C.F.R., 1570.

1842. Wordsworth, Scenery, 23. On road-side, east side of Coniston Lake, T. Gough. **1864.** Linton, Lake Country, 321. East side of Coniston Lake. **1874.** J. of B., Miss E. Hodgson. Hills near Ulverston. **1885.** Baker's Flora, 72. Gough repeated. Between Windy Ash and Higher Laith, near Ulverston, Miss E. Hodgson.

NOTE.—In reality the plant appears before reaching Windy Ash.

Hippocrepis comosa L. C.F.R., 1634.

1843. Jopling, Furness and Cartmel, 262. Copse Head, Holker, Wilson; and limestone pastures in Furness, Aiton. **1861** (1855). Martineau's Guide. No locality. **1864.** Linton, Lake Country, 321. Grange. **1864.** Naturalist, 39. Humphrey Head, and plentiful on the rocks a mile nearer Kent's Bank, Leo H. Grindon. **1885.** Baker's Flora, 72. Aiton and Wilson repeated. Birk Fell, Humphrey Head, and Yewbarrow, near Grange, W. Foggitt, C. Bailey, etc. **1892.** Haviland, Distrib. Disease, 375-6.

Vicia hirsuta Koch. C.F.R., 1597.

1874. J. of B., Miss E. Hodgson. No locality.

Vicia tetrasperma Moench. *Ervum* L. C.F.R., 1660.

1869. Aspland's Guide. Within six miles of Grange, A. Mason. **1885.** Baker's Flora, 73. 'Included in Aspland.' 'Seen only once, by the side of the road ascending from the Ferry Inn at Windermere to Sawrey,' J. G. Baker.

Vicia Cracca L. C.F.R., 1629.

1843. Jopling, Furness and Cartmel, 262. In hedges and low pastures about Bardsea, Aiton. **1864.** Linton, Lake Country, 321. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. No locality.

Vicia sylvatica L. C.F.R., 1634.

1796. Withering, ed. iii., 635. 'Urswick Woods, climbing up the trees for several yards, so as to be very ornamental,' Atkinson. **1801.** Withering, ed. iv., 621. Atkinson repeated. 'Woods on [the] limestone about Newton [in] Cartmel for a few years after the woods have been cut down,' Hall. **1805.** West. Antiq. ed. Close, 379. Atkinson repeated. **1805.** Turner and Dillwyn, Bot. Guide, ii., 371. Hall repeated. **1812.** Withering, ed. v., 782. Atkinson and Hall repeated. **1818.** Ed. vi. Atkinson and Hall repeated. **1830.** Ed. vii. Atkinson and Hall repeated. **1837.** Baxter, Phænog. Bot., iii., 173. Hall's loc. repeated, but ascribed to a Mr. Robinson. **1842.** Evans, Furness and Furness Abbey, 26.

Atkinson repeated. 1843. Jopling, Furness and Cartmel, 262. Atkinson's locality repeated by Aiton; and between Stonylands and Newton-in-Cartmel, Wilson. 1885. Baker's Flora, 72-3. Atkinson and Wilson repeated. 1890-93. The Grange Guides, on Wilson's authority.

Vicia sepium L. C.F.R., 1632.

1874. J. of B., Miss E. Hodgson. No locality.

Vicia sativa L.

1864. Linton, Lake Country, 321. Common, no locality.

Vicia angustifolia L.? (aggregate). C.F.R., 1696.

1843. Jopling, Furness and Cartmel, 262. Frequent on hedge-banks, Aiton and Wilson.

Vicia segetalis Thuil.

1874. J. of B., Miss E. Hodgson. Plumpton. 1885. Baker's Flora, 73. 'Seen as a cornfield weed . . . about Ulverston.'

NOTE.—Probably these three *Vicias* should be grouped as one, but I give them as found.

Lathyrus pratensis L. C.F.R., 1597.

1864. Linton, Lake Country, 321. 'Common,' no locality.

1874. J. of B., Miss E. Hodgson. No locality.

Lathyrus macrorrhizus Wimm. *Orobus* L. C.F.R., 1548.

1843. Jopling, Furness and Cartmel, 262, var. *tenuifolius* (Roth.). Occasionally met with in the north of Furness, but very rare, Aiton. 1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Baker's Flora, 74. Aiton repeated.

Lathyrus palustris L. C.F.R., 1667.

There are many records for this species in Lancashire, but not so far as I can learn, N. Lancashire. Hudson's '*passim*' must be taken with caution, here as elsewhere.

Prunus communis Huds. *P. spinosa* L. C.F.R., 1562.

1842. Evans, Furness and Furness Abbey, 26. One of the principal underwoods. 1864. Linton, Lake Country, 321. No locality. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Baker's Flora, 75. 'Ascending to 300 yards over Coniston.'

Prunus insititia L. C.F.R., 1662.

1874. J. of B., Miss E. Hodgson. Rosshead hedges near Ulverston.

Prunus domestica L.

1874. J. of B., Miss E. Hodgson. Near Barnbeck Farm, near Pennington. 1885. Baker's Flora, 75. Miss E. Hodgson repeated.

Prunus Avium L. C.F.R., 1634.

1864. Linton, Lake Country, 321. No locality. 1874. J. of B., Miss E. Hodgson. In most woods. 1885. Baker's Flora, 75. 'Everywhere common in woods and thickets through the lower zone, ascending to the summit [¹ 425 ft.] of Yewbarrow, behind Grange-over-Sands,' J. G. Baker.

Prunus Cerasus L. C.F.R., 1841.

1874. J. of B., Miss E. Hodgson. 'Occasionally in hedges in Furness, but rare.' 1885. Baker's Flora, 75. Miss Hodgson repeated.

Prunus padus L. *Cerasus avium et racemosa* Ger. C.F.R., 1597.

1633. Ger. Em., 1504-5. 'In Lancashire, almost in every hedge,' and the same in ed. of 1636. 1778. Hudson, Fl. Ang., ed. ii., 213-14. Habitat *in sylvis et sepibus; in comit.* Westm. Cumb. Ebor. Lancasterensi, etc., *frequens*. 1805. Turner and Dillwyn, ii., 369. 'Common in the county, Hudson.' 1835. Watson, N.B.G., i., 412. 'Common in the county, B.G.' 1864. Linton, Lake Country, 321. No locality. 1874. J. of B., Miss E. Hodgson. Old high hedges at the Crag, near Ulverston; Scarthwaite, Furness Fells. 1885. Baker's Flora, 75. Common everywhere in woods and hedges. 1892. J. of B., 342. W. A. Clarke repeats Gerard.

Spiræa salicifolia L.

1796. Withering, ed. iii., 463. By the road between Colthouse and Pool Bridge, near Hawkshead, John Dalton.² 1799. Hull, Brit. Fl., 110. Near Hawkshead, J. Dalton. 1800. Smith, Fl. Brit. ii., 535, Dalton repeated. On the borders of Windermere, Gough; and repeated in 1801. Withering, ed. iv., 454. 1805. Turner and Dillwyn, ii., 369. 1812. Withering, ed. v., 566, and 1818, ed. vi., 609. 1828. Smith, Eng. Fl., ed. ii., 368. 1830. Withering, ed. vii., 608-9. 1835. Watson, N.B.G., i., 300. 'B.G.' given as authority. 1842. Wordsworth, Scenery, 23. 1843. Jopling, Furness and Cartmel, 263. By the side of Windermere, Aiton. 1846. Phytologist, 427. 'Has long been recorded as a native of the shores of Windermere; yet I regard it as most probably introduced,' W. Borrer. 1856. Phytologist, 366. 1861 (1855). Martineau's Guide, 183. Near the Ferry Inn. 1864. Linton, Lake Country, 321. 1874. J. of B., Miss E. Hodgson.

¹ So on Ordnance Map.

² See Britten and Boulger's Index, 44, and the authorities there cited. There are some good stories about him in Canon H. D. Rawnsley's 'Literary Associations of the English Lakes,' 2 vols, 1894.

No locality. **1885.** Baker's Flora, 76. Dalton's and the Windermere station repeated. Near Waterhead, Coniston.

NOTE.—In 1888 I hunted for it in vain at Waterhead, Coniston—that is, Waterhead, where the hotel used to be, not where it is now. Was it one of the remains of the old garden, and now replanted in front of some cottage, or have I missed it?

Spiræa Ulmaria L. C.F.R., 1568.

1843. Jopling, Furness and Cartmel, 264. In swampy places, Ulverston; Aiton. **1864.** Linton, Lake Country, 321. No locality.

1874. J. of B., Miss E. Hodgson. No locality.

Spiræa Filipendula L. C.F.R., 1548.

1843. Jopling, Furness and Cartmel, 263. Furness Fells, Aiton. Copse Head; Humphrey Head, Wilson. **1856.** Phytologist, 353. Humphrey Head, Dr. Windsor; and repeated in **1857.** Phytologist, 257; **1860,** 357; **1861,** 259; and 237, by C. J. Ashfield. **1874.** J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 76. Dr. Windsor repeated. **1890-93.** The Grange Guides on the authority of Wilson, and an unpublished station of my own. **1892.** Haviland, Distrib. Disease, 376.

Rubus Idæus L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 264. In many thickets near Bardsea, Aiton. **1864.** Linton, Lake Country, 321. Common; no locality. **1874.** J. of B., Miss E. Hodgson. 'Not infrequent.'

Rubus fruticosus L. (aggregate). C.F.R., 1562.

1864. Linton, Lake Country, 321. 'Common;' no locality.

[**Rubus fissus** Lindl.

1864. Eng. Bot., ed. iii., 3, 165-6. 'Lancashire; Bab. in Herb. Kew.' But no clue to locality. **1885.** Mr. Baker, Lake Flora, 80, says it occurs in the Lake District. Is there no published locality in North Lancashire for it?]

Rubus suberectus Anders.

1874. J. of B., Miss E. Hodgson. No locality. **1885.** Baker's Flora, 80. Coniston, Grange, Duddon Valley at Seathwaite. **1892.** Naturalist, 81. Bank of the Duddon, near Duddon Bridge, L.P.

Rubus hamulosus L. & M.

1886. J. of B., 218. Kirkby, Lancashire. Harbord-Lewis, Aug. 13th, 1879. No other evidence. But is it Kirkby in North Lancashire?

Rubus affinis W. & N.

1874. J. of B., Miss E. Hodgson. The Flan, Ulverston; Foxfield. **1885.** Baker's Flora, 81. 'Ascends to 300 yards at Coniston.' 'A universally distributed Lake sub-species,' 'and a form with less

decidedly laciniate leaves' than 'the *R. laciniatus* of gardens, and ascending sepals, between Ulverston and Swarthmoor,' J. G. Baker.

Rubus rhamnifolius W. & N. (Auct. Angl.)

1874. J. of B., Miss E. Hodgson. Mungeon; Back Redding's Allotment, Cartmel.

VAR. **cordifolius** Auct. Angl.

1874. J. of B., Miss E. Hodgson. Beyond the Flan; Tilberthwaite Ghyll Bridge; and repeated 1885. Baker's Flora, 81.

Rubus umbrosus Arrh. (aggregate).

1874. J. of B., Miss E. Hodgson. Finsthwaite Woods, Mrs. Jas. Hodgson.

Rubus Lindleianus Lees.

1874. J. of B., Miss E. Hodgson. Below Bowstead Gates, near Ulverston. 1885. Baker's Flora, 81. 'Universally distributed' in the Lake District. Coniston village; Sawrey, and woods about the Ferry, Windermere; Newby Bridge; Ulverston; Cartmel; Humphrey Head and Grange-over-Sands (? J. G. Baker).

Rubus rusticanus Merc.

1874. J. of B., Miss E. Hodgson (as *discolor* W. & N.). Furness Abbey; top of Humphrey Head; roads above Grange. 1885. Baker's Flora, 82. 'In Furness.' 'I have seen a form with laciniate leaves at Ulverston, on the road to Swarthmoor,' J. G. Baker.

Rubus leucostachys Schleich (in Smith, Eng. Fl. 1824).

1885. Baker's Flora, 82. 'Common about Newton-in-Cartmel, Newby Bridge and Grange.' 'Seen also about Coniston, Colwith Force, Sawrey, Cartmel and Ulverston.'

Rubus Radula Weihe.

1874. J. of B., Miss E. Hodgson. Brick-kiln Lane, near Ulverston. 1885. Baker's Flora, 83. Miss Hodgson repeated. Road-sides at Newton and Newby Bridge.

Rubus rosaceus W. & N.

1885. Baker's Flora, 84. Woods about the Ferry Inn, Windermere, J. G. Baker.

Rubus Koehleri VAR. **pallidus** Bab.

1874. J. of B., Miss E. Hodgson, as *pallidus* W. & N. Mansriggs Wood, near Ulverston; Bigland Hill, Cartmel; Finsthwaite Woods, Mrs. Jas. Hodgson. 1885. Baker's Flora, 83-4. 'One of the commonest of the Lake *Rubi*, ascends to 300 yards over Coniston,' J. G. Baker.

Rubus Bellardi W. & N.

1874. J. of B., Miss E. Hodgson. Edge of Long House Ghyll, Walna Scar, about a mile from Seathwaite Church. 1885. Baker's Flora, 81. Miss Hodgson repeated.

NOTE.—Mr. E. G. Baker, F.L.S., tells me that Miss Hodgson's specimen in the Natural History Museum, Cromwell Road, is not a particularly good one, and the Rev. E. F. Linton writes that this name is often given for something else.

Rubus dumetorum W. & N.

1885. Baker's Flora, 84. Hedges of the Upper Road between Grange and Lindale, J. G. Baker. (It is now called the Lindale Road.) Shore near Kent's Bank Railway Station, J. G. Baker.

Rubus corylifolius Sm.

1874. J. of B., Miss E. Hodgson. North Scale lanes, Isle of Walney; top of Humphrey Head. 1885. Baker's Flora, 84. Ulverston; Grange.

Rubus cæsius L. *R. tricoccus*. C.F.R., 1597.

1640. Parkinson, Herbal., 1015. Is well-known in the north parts of this land as Cheshire, Yorkshire, Lancashire. 1710. Salmon, Botanologia, ii., 932. Many places in north of England, . . . Lancashire. 1854. Phytologist, 3 (as *cæsius*). About Furness Abbey, J. Robson. 1864. Linton, Lake Country, 321. 'Common,' no locality. 1885. Baker's Flora, 85. Grange.

Rubus saxatilis L. C.F.R., 1670.

[*'Rubus suavis fructu rubro.'* 1666 and 1667. Merrett, Pinax, 107. 'And on the walls in Lancashire,' which is corrected in the B.M. copy (see Bibliography) to 'under the walls,' etc. 1724. Ray, Syn., ed. iii. Placed by Dillenius in the 'Plantarum Dubiarum.']

1843. Jopling, Furness and Cartmel, 264. Near Ulverston, Aiton. 1861. Phytologist, 259. Humphrey Head, Dr. Windsor. 1874. J. of B., Miss E. Hodgson. Roudsey Wood. 1885. Baker's Flora, 79-80. Dr. Windsor and Miss Hodgson repeated.

In regard to Merrett's name, the species meant by him is not *R. Idæus*, as that is given with its proper name. If his plant is not *saxatilis*, what can it be, surely not an unripe state of something else? If so it would scarcely be '*suavis*.' Unfortunately no finder is given.

Geum urbanum L. C.F.R., 1548.

1843. Jopling, Furness and Cartmel, 264. Around Conishead Priory (Aiton) and Broughton, Cartmel, Wilson. 1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality.

Geum rivale L. C.F.R., 1633.

[1666 and 1667. Merrett's Pinax, 22. 'Common in the woods of Lancashire,' as *caryophyllata montana*. Gerard also records from Lancashire, but gives no special habitat.]

THE MAMMALS OF THE ASHBOURNE DISTRICT OF DERBYSHIRE.

LIONEL E. ADAMS, B.A.,

Northampton; Hon Treasurer of the Conchological Society.

IN response to a request from my friend Mr. Roebuck for some information about the indigenous mammals of this district, I have much pleasure in giving the result of my work here during the last few years.

The district to which the following notes refer extends from the foot of the limestone hills which end abruptly (as far as Derbyshire is concerned) at Thorpe Cloud, for some ten miles over the new Red Sandstone and Bunter tract which extends over Staffordshire. This particular portion is an extremely picturesque range of hills, mostly pasture land, but often diversified by parks, woods, and spinneys, and faces the Weaver Hills across the Dove. The Derbyshire hills diminish at Norbury and cease altogether at Doveridge, near Uttoxeter.

My notes, however, are not strictly confined to the Derbyshire side of the Dove, but now and then trespass on my friend Mr. J. R. B. Masefield's district, here and there supplementing his careful paper, 'The Existing Indigenous Mammals of North Staffordshire,' published in the proceedings of the North Staffordshire Naturalists' Field Club.

I have taken Clifton as the centre of operations, and it will be seen that this spot is particularly rich in the lesser mammals, especially my favourites—the 'mice.' The lanes round Clifton have high banks on either side topped with hedges, reminding one of those in Devonshire; and it is these banks, which are simply honey-combed with 'runs,' that I have made a special hunting-ground.

Of Bats there are certainly three species common in this neighbourhood.

Long-eared Bat. *Plecotus auritus*. This unmistakable species I have often seen and also had in my possession.

Great Bat. *Vesperugo noctula*. Often seen in the summer evenings; and Mr. Poole, a well-known naturalist of Ashbourne, had one stuffed that he took close to Ashbourne a year or so ago.

There is a small short-eared species that I have not been able to handle a specimen of, but which I have often seen, and fished for with a fly-rod unsuccessfully, which I believe to be the common *Vesperugo pipistrellus*.

There is a report that the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) occurs in Dovedale, but I have no knowledge of it.

Hedgehog. *Erinaceus europæus*. Common in the neighbourhood.

Mole. *Talpa europæa*. We have this in abundance over the whole neighbourhood. A gardener that worked for us recently averred that it was true that 'Moles were blind, but they had eyes in the soles of their feet!' A curious and Irish-sounding notion which was entirely new to me.

Common Shrew. *Sorex araneus*. The most abundant 'mouse' in the district to judge by the numbers caught in traps in hedge-banks, spinneys, and even, in winter, in our greenhouse.

Lesser Shrew. *Sorex minutus*. A rarely met with and little known species. I have been fortunate enough to capture three specimens—two in a spinney close to Clifton and one in our greenhouse. The two in the spinney differed in colour considerably—one being nearly black, the other light mouse colour. In preparing the skulls I have been unable to use lime, as the base of the skull is largely membranaceous, but the results are all that can be desired. This species is very likely to be overlooked as the young of the former, but the length and thickness of the tail, which is closely covered with hair, distinguish it. A cross section of the tail is circular, while that of the former species is tetragonal. The nose is also more slender, and the teeth distinct.

Water Shrew. *Crossopus fodiens*. Has only once been noticed at Clifton. My brother found a dead individual in the road by our gate (Clifton) some hundred yards from the nearest water. Mr. Poole, of Ashbourne, tells me that the Water Shrew is often found a long way from water, while the black variety (Oared Shrew) never is. This last I have never seen.

Badger. *Meles meles*. Common in the woods round. Several have been found in Bradley Wood, Snelston, Shirley, and near Brailsford, quite recently.

Otter. *Lutra lutra*. As to the occurrence of this I cannot obtain any precise information. Certainly of recent years none

have been killed in the immediate neighbourhood, but there are rumours of several having been seen, which I think is highly probable, as the river here is extremely suitable for them.

Weasel (*Mustela vulgaris*) and **Stoat** (*M. erminea*). Both very common; the latter said to be the rarer of the two.

Polecat. *M. putorius*. This has not been known for 40 years, when, Mr. Poole tells me, one was killed at Warslow Hall; this, however, is in Staffordshire.

Yellow-breasted Marten. *Mustela martes*. An example was caught, within Mr. Poole's recollection, 60 years ago in Dovedale (Mr. Poole is now past 70), and the stuffed animal is now in Ashbourne.

We may conclude that this district was once the haunt of the Wild Cat (*Felis catus*) from the 'Wild Cat Tor,' near Matlock. The thick woods up and down inaccessible slopes in the Dale form just the sort of habitats for this animal almost extinct as British. There is, however, no record that I can find of its occurrence here.

Fox. *Vulpes vulgaris*. Abundant all round and frequent 'meets' take place in the immediate neighbourhood.

Squirrel. *Sciurus vulgaris*. Very abundant in the woods all over the neighbourhood, particularly at Snelston. One with a grey tail used to frequent our garden here at Clifton and eat the fruit to which it was always welcome, and twice a Squirrel has been seen on the flower-boxes which stand on the bedroom window-sills.

I cannot hear of the Dormouse (*Muscardinus axellanus*) nearer than Oakamoor, in Staffordshire, but I should not be surprised if it were to turn up in the woods on this side of the border.

I am informed by my neighbour, Mrs. Holmes, of Clifton, that in a field at Marchington some years ago the Harvest Mouse (*Mus minutus*) used to be found in the corn, where it made its characteristic nests. The mice used to be caught to play with. This locality is also just over the border in Staffordshire.

Long-tailed Field Mouse. *Mus sylvaticus*. I have trapped this in the hedge banks round Clifton. It often causes damage to the bulbs in our garden, and I have caught them in our greenhouse where they are no more welcome than the

Common Mouse. *M. musculus*. This we have usually in evidence.

Brown Rat. *Mus decumanus*. We have this always with us, more especially since the departure of a favourite fox-terrier belonging to my brother.

Water Vole. *Microtus amphibius*. Very common along the Dove, and particularly abundant along the Henmore brook.

Short-tailed Field Mouse. *Microtus agrestis*. Very common in the hedge banks and fields, and is now and then caught in our greenhouse.

Bank Vole. *Microtus glareolus*. Judging by the relative frequency of its capture in traps set in all sorts of places, this Vole is much commoner than *M. agrestis*. The other day I caught the largest specimen I have seen. It was a male, measuring 160 mm. from nose to end of tail. Tail 47 mm.

Hare. *Lepus europæus*. Abundant, and affords sport to a local pack of harriers.

Rabbit. *Lepus cuniculus*. Swarms throughout the district. The tracks over the fields in the recent snow were a sight to see.

Fallow Deer. *Cervus dama*. These pretty deer are to be found at Keddleston, and just across the Staffordshire border in Okeover Park.

January 21st, 1895.

NOTES AND NEWS.

We are in receipt of a reprint of a paper from our old friend Mr. Edgar R. Waite, F.L.S., Zoologist to the Australian Museum at Sydney, entitled 'New or Rare Fishes from Maroubra, N.S.W.,' extracted from the Proceedings of the Linnean Society of New South Wales—Vol. 9—which treats of about a dozen species, some of which are figured from Mr. Waite's own drawings.

At the April meeting of the Entomological Society of London, Mr. Francis Galton, F.R.S., having read a paper entitled, 'Entomological Queries bearing on the question of Specific Stability,' Mr. Merrifield stated that he received some years ago, from Sheffield, ova of *Selenia illustraria*, the brood from which produced, in addition to typical specimens, four of a dark bronze colour, and from these he bred a number of specimens of a similar colour.

From our old friend, Mr. J. Burtt Davy, formerly of Alford, Lincs., and later of the Royal Herbarium at Kew, we have received the September number of 'Erythea,' a Journal of Botany, West American and general, containing a paper by himself entitled 'Transcripts of Some Descriptions of Californian Genera and Species,' this being the second paper. We are pleased to see that Mr. Davy is still devoting himself to systematic work, for which there is abundant scope in his present post in the Department of Botany in the University of California.

Naturalist,

YORKSHIRE NATURALISTS AT KNARESBOROUGH.

THE well-wooded slopes of that picturesque portion of the valley of the River Nidd which runs from the Viaduct in a winding course to Goldsborough Mill, formed the scene of the 110th excursion of the Yorkshire Union, on Saturday, July 14th, 1894. A typical July day, the attendance of naturalists was large and fairly representative of the different sections.



EXPLANATION.—The Map is divided into square miles by horizontal and perpendicular lines.

During the afternoon a very heavy thunderstorm broke over the neighbourhood, converting the precipitous cliffs for the nonce into miniature cascades and the roads into rushing mountain-streams. Luckily most of the members had ere this found their way to the Elephant and Castle Hotel, where tea was awaiting them, but some were more unfortunate and received a severe drenching before shelter could be obtained.

Permission to pass over their estates had been kindly granted by Lord Harewood, Captain Slingsby and Mr. Basil T. Woodd.

Two lines of route were followed. Mr. John Farrah, of Harrogate, led a party along the north side of the river, passing Fort Montague and Abbey Plain, then crossing the river proceeded to Birkham Wood and worked along the river side to High Bridge, thence proceeding through Scriven Park and returning by Farnham. A second party, under the leadership of Mr. Riley Fortune, F.Z.S., proceeded up the Nidd Valley, through Scriven Park, returning along the upper side of the river.

At half-past five o'clock, tea having been finished, the sectional meetings were held, followed at a quarter to six by the general meeting, the Rev. Wm. Fowler, M.A., occupying the chair.

There was a very large attendance of members and associates, representing 20 societies, as follows:—Harrogate, Liversedge, Malton, Bradford Nat. Soc., York, Leeds Nat. Club, Leeds Co-operative Nat. Club, Leeds Geological Association, Hull Geological Society, Hull Scientific Club, Wakefield, Elland, Goole, Bradford Scientific Association, Dewsbury, Ripon, Craven, Scarborough Philosophical Society, and Ellesmere School Nat. Society. The sectional reports were then given as follows:—

The Conchological Section was, comparatively speaking, in great force; and the sectional report was, in the absence of all the sectional officers, given by Mr. C. D. Wolstenholme of York, as follows:—The Castle Hill at Knaresborough was very productive of *H. nemoralis*, *H. hortensis*, *H. arbustorum* (one specimen being unusually large), *H. cantiana*, *H. rufescens*, *H. rupestris*, *H. hispida*. A single specimen of *Clausilia rugosa* was also found there. Other shells taken during the day comprised *H. lapicida*, *Hyalinia nitidula*, *H. alliaria*, *H. cellaria*, *H. draparnauldi*, *Cochlicopa lubrica*, *H. rotundata*, and the ever-present *H. aspersa*. *Limnæa peregra* was the only freshwater shell recorded.

The Entomological Section were not by any means as successful as usual, and Mr. W. F. Baker, F.E.S., reported that the only Coleopterous insect found worthy of note was *Aphodius putridus*. Mr. W. Hewett records the following Lepidoptera and Hymenoptera as having been noted: Lepidoptera observed by himself during the day in the neighbourhood of Scriven Park and in the Nidd Valley—*Satyrus janira*, *Smerinthus populi* (larvæ), *Xylophasia polyodon*, the ubiquitous *Triphæna pronuba*, *Metrocampa margaritata*, *Boarmia repandata*, *Asthena blomeri*, *Acidalia incanaria*, *Cabera pusaria*, *Abraxas grossulariata*, *Larentia didymata*, *Melanippe montanata*, *Camptogramma bilineata*, *Tanagra chærophyllata*, *Cidaria fulvata*

(larvæ). None of these call for any special notice, all being common and of general distribution, the only exception being *Asthena blomeri*, of which Mr. Hewett noticed one specimen at rest on the bole of an ash tree, on the wooded slopes of the Nidd Valley. The species occurs in abundance at Sledmere, and also sparingly at Castle Howard, Coxwold, and Helmsley. Whilst at Knaresborough on the 30th April, 1894, he noticed *Pieris rapæ*, *P. napi*, *Anticlea badiata*, *Scoparia ambigualis*, *Crambus tristellus*, and *Crambus culmellus*. For the correct determination of the three last-named insects, Mr. Hewett was indebted to Mr. G. T. Porritt, F.L.S. Mr. Hewett further mentioned that a fine living female specimen of *Sirex gigas* was given to him by a keeper who had just caught and impaled it. In this connection it will be of interest to mention that Mr. T. H. Blakey, Starbeck, has taken the following Lepidoptera in the neighbourhood of Knaresborough: *Pieris brassicæ*, *P. rapæ*, *Anthocharis cardamines*, *Colias edusa*, *Vanessa urticæ*, *V. atalanta*, *V. io*, *V. cardui*, *Satyrus janira*, *Chortobius pamphilus*, *Polyommatus phlæas*, *Lycæna alexis*, *Thanaos tages*, *Smerinthus populi*, *S. tiliæ*, *Sesia tipuliformis*, *Cossus ligniperda*, *Hepialus hectus*, *H. humuli*, *Zygæna filipendulæ*, *Arctia caja*, *Liparis auriflua*, *L. salicis*, *Orgyia antiqua*, *Odonestis potatoria*, and *Dicranura vinula*. Thirteen species of Spiders were recorded by Mr. Lund.

For the Botanical Section Mr. A. H. Pawson, its Phanerogamic Secretary, reported on the Phanerogams as follows:—The riband-like tract of magnesian limestone which runs N.W. and S.E. through Yorkshire attracts the botanist as the heather does the honey-bees, and it is no doubt greatly on our account that the geologists have such frequent opportunities of studying these singularly unfossiliferous rocks. Our rambles on this lovely July day did not extend much beyond a mile from the town. The Wallflower of the truly wild type and the rare Nottingham Catch-fly were observed on the cliffs above the river, fortunately in places inaccessible to would-be depredators. *Allium oleraceum* is here in marvellous abundance, and there is a good patch of *Salvia verbenaca* in a sunny corner. *Anthriscus vulgaris* was again found, as at Pontefract, this time on Grimbald's Crag, where *Geranium pusillum* was growing. The time was short and a thunder-shower hindered us, otherwise we should have had a longer list of plants than the following one, which was the result of the day's excursion:—

Helleborus viridis.
Cheiranthus cheiri.
Silene nutans.
Silene noctiflora.
Sagina apetala.

Hypericum montanum.
Geranium pratense.
Geranium pusillum.
Geranium columbinum.
Geranium sanguineum.

Asperula cynanchica.
Anthriscus vulgaris.
Caucalis nodosa.
Silaus pratensis.
Carduus nutans.
Carduus crispus.
Senecio erucifolius.
Crepis paludosa.
Calamintha arvensis.
Calamintha officinalis.
Salvia verbenaca.
Echium vulgare.
Malva moschata.
Campanula latifolia.
Euphorbia exigua.

Parietaria officinalis.
Atropa belladonna.
Allium oleraceum.
Paris quadrifolia.
Orchis pyramidalis.
Epipactis latifolia.
Festuca rigida.
Asplenium ruta-muraria.
Asplenium trichomanes.
Ophioglossum vulgatum.
Lomaria spicant.
Polypodium vulgare.
Equisetum maximum.
Equisetum sylvaticum.

Mr. Matthew B. Slater, F.L.S., Bryological Secretary to the Section, stated that this not being the season for Mosses, but little had been actually done on the day, but from all appearances it was for Cryptogamic Botany a very good district and if well worked would undoubtedly yield some very interesting specimens. The following had been mentioned in the circular as occurring in the Knaresborough district :—

MOSSES.—*Gymnostomum rupestre*, *Fontinalis squamosa*, *Hedwigia ciliata*, in Upper Nidderdale; *Dicranella squamosa*, *Eucladium verticillatum*, *Barbula lævipila*, *B. intermedia*, *B. papillosa*, *Webera carnea*, *W. albicans*, *Bryum pallens*, *Leskea polycarpa*, *Anomodon viticulosus*, *Eurhynchium crassinervium*, *Rhynchostegium tenellum*, *R. murale*, in the neighbourhood of Knaresborough; *Dicranum majus*, *Tetradontium brownianum*, at Plumpton Rocks; *Scleropodium cæspitosum*, near Cowthorpe Weir.

HEPATICS.—*Lunularia vulgaris*, Cowthorpe Weir; *Frullania dilatata*, *F. tamarisci*, *Radula complanata*, *Scapania undulata*, Knaresborough district; *Jungermania turbinata*, near Plumpton Rocks.

Mr. H. T. Soppitt recorded that about a dozen species of parasitic fungi had been seen. One species which confines its attentions to the Dandelion was very abundant, whilst one which attacks the Thistle, and another which attacks Clover, producing the disease known as ‘clover sickness,’ were also common.

For the Geological Section its President, Mr. Thomas Tate, F.G.S., reported that the geologists gave special attention to the instructive sections along the banks of the River Nidd, exposing the junction of the Carboniferous with the Permian Rocks. The cliff below the Castle grounds shows at its base a dome of coarse red Plumpton Grit, upon an irregularly denuded surface of which rests

the Lower Magnesian Limestone—a soft, yellow sandy rock—enclosing pebbles of the Grits in its base. A large trunk of *Sigillaria* is weathered out of the Grit. The striking sections near Grimbald Bridge show, in addition, the Middle Red Marls reposing on the Magnesian Limestone. In Bilton Fields the Limestone has thinned out and the Marl comes in nearly upon the Millstone Grits, which are continuous up to the Viaduct. The Caytongill (fossiliferous) beds were not recognised in any of the exposures examined. Not a single Permian fossil was obtained, although the sections are so plentiful and accessible. The members of the Boulder Committee were on the look out for erratics in the numerous drift deposits, but pebbles foreign to the watershed were not met with. Mr. J. W. Stather, F.G.S., conducted an early party by Grimbald Crag and the Nidd Valley, south of the town, returning by the Low Bridge to Knaresborough. The later arrivals explored Castle Cliff by the High Bridge, and along the river above the town, under the guidance of Mr. Tate, F.G.S.

For the Vertebrate Section, Mr. H. B. Booth, of Bradford, reported, the sectional officers, Mr. John Gerrard, the President, and Mr. Fortune, the Secretary of the Section, both being obliged to leave before the meeting commenced. Seven mammals and 40 birds had been seen, none of which called for any special remark. One thing worthy of note, however, was the presence of great numbers of Chiff-chaffs (*Phylloscopus collybita*) and Jays (*Garrulus glandarius*), both of which were unusually abundant.

The best thanks of the Union were given to Mr. J. Farrah, Mr. Riley Fortune, F.Z.S., and Mr. J. H. Lofthouse for the assistance they gave the Honorary Secretaries in making the arrangements for the excursion, and a hearty vote of thanks to the Chairman concluded the proceedings.—W. F. B.

NOTES AND NEWS.

We are sorry to learn of the sad loss recently sustained by our old and staunch supporter, Mr. T. Mellard Reade, F.G.S., of Liverpool, in the death of his wife, on the 22nd of April, after a long illness.

Our contemporary 'The Conchologist' has made another change, or rather, two changes. About a year or so ago it became 'The Journal of Malacology,' and now the Editorial control passes from the hands of Mr. W. E. Collinge, its founder, to those of Mr. Wilfred Mark Webb, F.L.S., of the County of Essex Technical Laboratories. The first number of the Fourth volume, issued 30th March last, contains a couple of additions to Mr. Collinge's long list of new 'species' of British slugs, and a little note signed with Mr. B. B. Woodward's ingenious pseudonym of '(B V)².'

NOTE—ORNITHOLOGY.

Eggs of the Lesser Tern.—I was amongst a small colony of the Lesser Tern (*Sterna minuta*) at the well-known breeding resort at Spurn during the first week of June 1894, and saw a clutch of three eggs which contained one rather remarkable specimen. This was of a somewhat darker ground colour than the other two in the set, which were very normal specimens of a bluish grey ground. [The normal eggs of this bird have the ground-colour pale stone-colour.—W.E.C.] The variety in question has a ground-colour of pale stone or light brown, and the remarkable feature about it is that it has a blotch of reddish purple marking about a quarter of an inch wide, forming a zone round the thicker end of the egg. The band is one blotch, not consisting of the usual spots and speckles.

A friend of mine also noticed a week or so later a clutch of four eggs of the Lesser Tern. I think this is worth recording, as a clutch of four eggs of this species is a very unusual occurrence, as according to eminent ornithologists two is the usual number, or sometimes three. I have never previously heard of a clutch of four, but I have found that they often lay three eggs. I am glad to see the birds are to be specially protected at Spurn this and the next five years, as it is only right they should be.—E. G. POTTER, York, March 21st, 1895.

NOTE—ALGÆ.

Further Notes on Certain Algæ.—My attention having, during the progress of the Bibliography of the Algæ, been drawn to some little plants which I had imagined had been noted, I now make good their previous omission. In August 1885, I had the pleasure of a visit from Dr. Otto Nordstedt, of Lund, Sweden, who communicated some information with regard to algæ in the North, especially as he was noting the *Vaucherieæ*. In Scott. Nat., Oct. 1886, pp. 382-384, Dr. Nordstedt made a communication on the British submarine *Vaucheria*, but without mention of some localities which he personally had given me. *Chamasiphon confervicola* was noted as parasitic upon *Cladophora* at Saltmarshe, near Goole. *Vaucheria litorea* Bang. et Ag., from river between Dolgelly and Barmouth, near Ferry Station; Greenodd, near Ulverston; and Brough, East Yorks. *V. synandra* Woronin in Bot. Zeit., 1869, was found only at Greenodd and at Saltmarshe. *V. thurstii* Woron., loc. cit., occurred at Brough and Greenodd. A new species of Nordstedt's, *V. sphaerospora* (possibly = *V. velutina* Carm.; the *V. velutina* of Harvey being very doubtful, and not that of Agardh) was not given to me as found in England; but specimens were obtained of *f. monoica* and *dioica* from Greenodd, Lancs., as well as from brackish water at Maldon, Essex, and the Thames banks at Kew. Dr. Nordstedt, in the little paper referred to, states that Mr. Holmes' *V. piloboloides* (Brit. Alg. Rar. Exsicc., No. 50) from Weymouth, was really *V. sphaerispora*. It is worthy of mention that Captain Carmichael's original specimen of *V. velutina* (so-called) now at Kew, where Dr. Nordstedt inspected it, was from Appin, not far from Ballachulish, where Dr. Nordstedt discovered his species for the first time in Britain.—W. BARWELL TURNER, Chapeltown, Leeds, April 26th, 1895.

NOTE—BOTANY.

Bekansgill.—For more particulars on this subject consult 'Notes and Queries' of last year (sub voce 'Furness Abbey'). The 'beacon' derivation is not new, as it is to be found in Evans' 'Furness and Furness Abbey,' 1842, and it is probably older, but is it safe? To me it appears more like those wonderful philological guesses to be found in guide books. For Bekan, Becon and Bacon (surnames) are supposed to have a common ancestor. The Anglo-Saxon 'bekene,' a beacon, has also been suggested. However, all this is hardly a subject for discussion in these pages, and it would be better to re-open the question by replying to a partly answered query of mine in 'Notes and Queries' of last year. There is, I believe, a more likely answer in the possession of a correspondent of mine, but I am not at liberty to use material belonging to another.—L. PETTY, 27th March, 1895.

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CŒLEENTERATA, 1884 to 1892.

THE present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

It includes the record of much important work done in connection with the exploration of Liverpool Bay by the Liverpool Biological Society and represents a most substantial advance upon our previous knowledge of the fauna of their district.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts. ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; and 71, Isle of Man.

ANON. [not signed].

Lanc. S.

Manchester Microscopical Society [noting *Obelia gelatinosa* found at Southport by E. Halkyard]. Research, Oct. 1889, p. 94.

ANON. [not signed].

Lanc. S.

Rambles taken during the Year 1889. . . . Gorton [May 11th, *Hydra viridis* and *H. fusca* noted]. 10th Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, p. 111.

ANON. [not signed].

Lanc. S., Isle of Man.

Rambles taken during the Year 1889. . . . Southport [July 13th ; *Sertularia pumila*, *S. abietina*, *Obelia gelatinosa* (reported in last year's ramble as *O. flabellata* by error), *Hydractinia echinata*, *Actinoloba dianthus*, *Tubularia coronata* noted ; *Ob. gelatinosa* also noted for Isle of Man]. 10th Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, pp. 114-116.

ANON. [not signed].

Isle of Man.

Opening of the Liverpool Marine Biological Station at Port Erin [with brief notice of dredgings ; *Clathria seriata*, *Spongelia fragilis*, *Sarcodictyon catenata*, and *Adamsia palliata* noted]. Nature, June 16th, 1892, pp. 155-156.

C. R. BEAUMONT.

Lanc. S.

A Ramble Round Daisy Nook [and Fitton Ponds, near Oldham : *Hydra* occurs]. Trans. Rochdale Lit. & Sci. Soc., vol. 2, for 1889-90, publ. 1890, p. 73.

JOHN BOYD.

Lanc. S.

[Cordylophora lacustris—found by Mr. Robinson in the Gorton Canal—exhibited to Manch. Lit. and Phil. Society, Nov. 9th, 1885]. Proc. Manch. Lit. and Phil. Soc., Session 1885-86, xxv. 72.

GEORGE BROOK.

York N.E.

Rarities from the Yorkshire Coast [noting *Obelia geniculata* L., and *Clytia johnstoni* Ald., as occurring at Redcar, August 1883]. Notes from my Aquarium, 1884, pp. 7-8.

May 1895.

- H. C. CHADWICK.** Lanc. S.
Rambles during the year 1887.—Southport [May 7th; *Obelia gelatinosa*, *Tubularia coronata*, *Hydractinia echinata*, and *Bougainvillia muscus* noted and habitat stated]. Ann. Rep. Manch. Micro. Soc. for 1887, pub. 1888, p. 62.
- A. CHOPIN.** Isle of Man.
Zoological Notes at Port St. Mary, Isle of Man [with complete list of captures; the Porifera were *Halisarca dujardini*, *Amorphina panicea*, *Hymeniacidon sanguinea*, *Ascaltis* (mis-printed *Oscaltis*) *botryoides*, *Leucandra johnstoni*, *L. gossei*? and *Sycandra compressa*, the only Ctenophore is *Pleurobranchia pileus*, the Hydrozoa are *Clytia johnstoni*, *Obelia geniculata*, *O. gelatinosa*, *O. flabellata*, *O. dichotoma*, *Campanularia caliculata*, *C. verticellata*, *C. angulata*, *C. neglecta*, *C. integra*, *Halecium halecinum*, *Diphasia attenuata*, and *Hydrallmannia falcata*, the Actiniaria are *Sagartia bellis* var. *modesta*, *S. miniata* v. *ornata*, *S. nivea* v. *immaculata*, *Actinia equina* vars. *rubra*, *umbria*, and *olivacea*, *Tealia crassicornis* v. *insignis*, and *Bunodes gemmacea*]. Journ. of Microsc., April 1890, pp. 126-129.
- J. A. CLUBB.** Isle of Man, Lanc. S., Cheshire.
List of the Medusæ and Ctenophora of the L[iverpool]. M.B.C. District [giving brief introductory remarks, followed by detailed notes on 20 species]. First Report on Fauna of Liverpool Bay, 1886, pp. 114-119.
- T. D. A. COCKERELL.** York N.E., Northumberland.
North of England Specimens in the British Collection at the British Museum [including *Isodictya permollis* Bowerb., and *Halichondria panicea* Johnst., both from Scarborough (Bowerbank Collection); *Plumularia frutescens* E. & S., from Northumberland (Dr. Johnston); and *Pennatula phosphorea* L., from Northumberland]. Nat., Aug. 1888, pp. 230-231.
- J. PERCY A. DAVIS.** York N.E.
Report of the Yorkshire Marine Zoology Committee; Presented to the Yorkshire Naturalists' Union, Nov. 20th, 1889 [noting *Actinia mesembryanthemum* found at Filey Brig, 14th September]. Nat., Jan. 1890, p. 4.
- J. PERCY A. DAVIS.** York N.E.
[Sea-Anemone, Sponge and Zoophyte observed by] the Yorkshire Naturalists' Union at Hayburn Wyke [on July 11th, 1891; *Actinia mesembryanthemum*, common; *Sertularia filicula* and *Tethya*]. Nat., Oct. 1891, p. 294.
- JOHN W. ELLIS.** Isle of Man, Cheshire, Lanc. S. and W.
Report on the Actiniaria of the L[iverpool]. M.B.C. District [giving detailed notes on 17 species; var. nov. *candida* of *Cylista undata* described and figured and list of its varieties given]. First Report on Fauna of Liverpool Bay, 1886, pp. 123-130 and figs. 3 and 4 of plate 2; review in Young Nat., Sep. 1886, pp. 186-7, repeats anent the *Cylista*.
- JAMES FLEMING.** Cheshire.
Rambles during the Year 1887.—Bramhall [July 2nd; *Hydra fusca* and *H. vulgaris* noted in pond at Mile End]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, p. 65.
- R. J. HARVEY GIBSON.** Isle of Man.
On a New Species of Sycandra [from the Isle of Man; *S. aspera* described and figured]. First Rep. Fauna of Liverp. Bay, 1886, pp. 365-367 and plate 10.
- E. HALKYARD.** Lanc. S.
[Obelia gelatinosa found at Southport]. Tenth Ann. Rep. Manch. Microsc. Soc., for 1889, publ. 1890, p. x.
- RICHARD HANITSCH.** Northumberland, Chesh., Isle of Man, York N.E.
Second Report on the Porifera of the L[iverpool]. M.B.C. District [giving a list of all the species on record, 47 in number, with notes on 22 of them; of the seven additions to Higgin's 1886 list one is new to British Seas and one new to science: *Halichondria panicea* J., *Reniera varians*, B. from Hilbre Island, *R. fistulosa* B., *Desmacidon fucorum* J., *Raspailia stelligera*

Schm., and *Sycandra ciliata* Haeck., from the Isle of Man; *Polymastia mamillaris* J., from Scarborough; *P. robusta* Bow., coast of Northumberland also noted]. Proc. Liverp. Biol. Soc., vol. 3, 1888-9, publ. 1889, pp. 155-173 and plates 5-7; in Second Report on Fauna of Liverpool Bay, 1889, with pagination altered to 28-46.

Cheshire, Lanc. S. and W., Isle of Man,
York N.E., Northumberland.

RICHARD HANITSCH.

Third Report on the Porifera of the L[iverpool].M.B.C. District [gives tabulation of distribution of all the species, nine for estuaries of Mersey and Dee, 30 for Isle of Man; records *Reniera varians* Bowerb. for Hilbre, *R. ingalli* Bowerb. for Southport and Isle of Man, *Chalina gracilentia* Bowerb. for Scarborough and Northumberland, *Ch. montagui* Johnst., *Esperella florem* Bowerb., *Amphilectus incrustans* Johnst., and *Clathria seriata* Johnst., for Isle of Man; *Plumohalichondria atrosanguinea* Bowerb., for Hilbre; *Suberites domuncula* Nardo, for Morecambe Bay and Isle of Man; *S. ficus* Esper, for coast of Northumberland; *Pachymatisma johnstonia* Bowerb., *Ascetta coriacea* Flem., and *Ascaltis botryoides* Flem. for Isle of Man; *A. contorta* Bowerb., for Hilbre and Scarborough; *Leucandra gossei* Bowerb., and *L. johnstoni* Cart., for Isle of Man; *L. nivea* Flem., for Hilbre and Isle of Man, and *Sycandra ciliata* Flem., for Hilbre]. Trans. Liverp. Biol. Soc., vol. 4, pp. 192-238 and plates 10-15; reprinted, with same pagination, in Third Report on Fauna of Liverpool Bay, 1892.

W. A. HERDMAN.

Cheshire?

[Address on the Work undertaken by the Liverpool Marine Biology Committee; referring to *Garveia nutans*, a beautiful zoophyte only found twice before]. Proc. Manch. Lit. and Phil. Soc., Dec. 7th, 1885, xxv., 101-103.

W. A. HERDMAN.

? Irish Sea.

Liverpool Microscopical Society [numerous species of Cœlenterata dredged in the Irish Sea cited]. Sci. Goss., Jan. 1886, p. 17.

W. A. HERDMAN.

Cheshire.

Introduction [to First Report on the Fauna of Liverpool Bay; *Sycandra ciliata*, *Isodictya varians*, *Suberites carnosus*, and *Halisarca dujardini* recorded for Hilbre Island; the last-named, *Hymeniacidon sanguinea*, *Cliona celata*, *Dictyocylindrus stuposus*, *Chalina limbata*, *Isodictya elegans*, *Halichondra incrustans*, *Leucandra gossei*, *L. nivea*, *L. johnstoni*, *L. fistulosa*, and *Ascetta coriacea* for the south end of the Isle of Man; *Hydractinia echinata*, *Tubularia indivisa*, *Garveia nutans*, *Calycella syringa*, *Sertularia filicula*, *Actinoloba dianthus* and *Alcyonium digitatum* recorded for Hilbre Swash, May 9th, 1885; special note on *Garveia nutans*, *Clava multicornis*, *Tubularia larynx*, *Coryne pusilla*, *Obelia dichotoma*, *Sertularella rugosa*, *Actinoloba dianthus* var. *rubida*, and *Cylista undata*, recorded for Hilbre Island; *Hydractinia echinata*, *Halecium halecinum*, *Alcyonium digitatum*, *Actinoloba dianthus*, *Lafoea dumosa*, *Sertularia abietina*, *S. operculata*, *S. filicula*, and *Antennularia antennina* dredged Jan. 20th, between Hilbre Island and Point of Ayr; *Garveia nutans*, *Campanularia hincksii*, *C. caliculata*, *Plumularia pinnata*, *Corynactis viridis*, *Polythoa arenacea*, *Sarcodictyon catenata*, *Halcampa chrysanthellum*, *Adamsia palliata*, *Heliactis venusta*, *Bunodes gemmaceus*, *Bougainvillea britannica*, *Thaumantias octona*, *T. thompsoni* and *Tubularia simplex* noted for S. end of Isle of Man]. First Report on Fauna of Liverpool Bay, 1886, pp. 1-15.

W. A. HERDMAN.

Isle of Man, Cheshire.

Report on the Alcyonaria of the L[iverpool]. M. B. C. district [giving detailed notes on the two species which occur and figures of *Sarcodictyon catenata* in the expanded state]. First Report on Fauna of Liverpool Bay, 1886, pp. 120-122, and plate II., figs. 1 and 2.

W. A. HERDMAN.

Isle of Man.

Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [with mention of numerous species and their occurrence]. First Rep. Fauna of Liverp. Bay, 1886, pp. 318-341, and plate 12.

May 1895.

W. A. HERDMAN.

Cheshire.

The Foundation and First Season's Work of the Liverpool Marine Biological Station on Puffin Island [including notes on the rich fauna of Hilbre Island; *Garveia nutans*, *Cylista undata* var. *candida*, and *Tubularia indivisa* mentioned, the last only in the separate reprint]. Proc. Biol. Soc. Liverp., vol. 2. 1887-8, publ. 1888, pp. 39-41; Fauna of Liverpool Bay, vol. 2, 1889, same pagination; and separate report, 1888, with pagination altered to 4-6.

W. A. HERDMAN.

Isle of Man.

The Liverpool Marine Biology Committee's Easter Dredging Cruise [made round the S. end of the Isle of Man, April 18th, 1889, and following days: *Sarcodictyon catenata* and *Adamsia palliata* between Port Erin and the Calf]. Nature, May 9th, 1889, p. 47.

W. A. HERDMAN.

Isle of Man.

The Second Annual Report of the Liverpool Marine Biological Station on Puffin Island [with notice of *Alcyonium digitatum* off the Isle of Man]. Proc. Liverp. Biol. Soc., vol. 3, 1888-9, publ. 1889, p. 35; reprinted as separate pamphlet of 26 pages in cover with map, 1889; also included in Second Report on Fauna of Liverpool Bay, 1889, with slightly different pagination, 24 pp.

W. A. HERDMAN.

Isle of Man.

Brief Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [enumerating *Halisarca dujardini*, *Garveia nutans*, *Corynactis viridis*, *Polythoa arenacea*, *Halcompa chrysanthellum*, *Sarcodictyon catenata*, *Leucogypsia gossei*, *Heliactis venusta*, *Halichondria*, *Isodictya elegans*, *Grantia compressa*, *Antennularia ramosa*, and *Plumularia pinnata*]. Back Trans. I. of Man Nat. Hist. Soc., i. 54-56; publ. with Yn Lioar Manninagh, July 1889.

W. A. HERDMAN.

Cheshire.

On the Structure and Function of the Dorsal Papillæ in Nudibranchiata [with casual references to the association of nudibranchs with *Alcyonium digitatum* and *Clava multicornis* at Hilbre Island]. Brit. Ass. Rep., Newcastle, 1889, publ. 1890, p. 632.

W. A. HERDMAN.

Cheshire.

Opening Address to the Liverpool Biological Society [with incidental note on *Alcyonium digitatum* and *Clava multicornis* at Hilbre Island]. Trans. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, pp. 17-18.

W. A. HERDMAN.

Isle of Man.

Third Annual Report of the Liverpool Marine Biological Station on Puffin Island [with note of *Esperella floreum* (new to the district) and *Halisarca rubra* n. sp., at the Isle of Man]. Trans. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, pp. 60 and 70; reprinted with pagination altered to 25 and 35 in Third Report on Fauna of Liverpool Bay, 1892; and again reprinted as a separate report, 1890, pagination again altered to 27 and 37.

W. A. HERDMAN.

Isle of Man, Lanc. S., Cheshire.

Fourth Annual Report of the Liverpool Marine Biological Station on Puffin Island [including notes on occurrence of *Garveia nutans* (in abundance), *Alcyonium digitatum*, *Clava multicornis*, at Hilbre Island; of *Hydranthea margarica*, *Bimeria vestita*, *Campanularia hincksii*, *Gonothyraea gracilis*, and *Aglaophenia tubulifera* dredged 15 or 25 miles N.W. of Liverpool Bar; *Syncoryne eximia*, *Lasoeia fruticosa*, *Sertularia abietina*, *Corymorpha nutans*, *Coryne pusilla*, *Sagartia nivea* and var. *immaculata*, off the Isle of Man; *Sagartia viduata* vars. *alurops* and *melanops*, *Strogilodytes* vars. *candida* and *scolopacina* at Hilbre Island; *Pachymatisma johnstoni*, *Reniera ingalli* B. and *Chalina montagui* J. from the Isle of Man, the two latter new to the district]. Trans. Liverp. Biol. Soc., vol. 5,

Naturalist,

1890-91, publ. 1891, pp. 28, 31-33, 46, 48; reprinted Jan. 1st, 1891, as a separate report with pagination altered to 12, 15, 17, 30 and 32; reprinted in Third Vol. of Reports on Fauna of Liverpool Bay, 1892, with pagination again altered to 10, 13, 15, 28, and 30.

W. A. HERDMAN.

Isle of Man, Cheshire, Lanc. S. and W.

List of Papers on the Fauna and Flora of Liverpool Bay published since 1886 as a result of the L.M.B.C. investigations. Trans. Liverp. Biol. Soc., vol. 5, 1890-91, publ. 1891, pp. 62-67; reprinted as appendix to separate (4th) Report on Puffin Island Station, Jan. 1st, 1891, with pagination altered to 46-51; reprinted in 3rd vol. of Reports on Fauna of Liverpool Bay, 1892, with pagination again altered to 44-49.

W. A. HERDMAN.

Cheshire, Isle of Man.

Fifth Annual Report of the Liverpool Marine Biological Station now on Puffin Island [with a note on a new *Raspailia* and *Garveia nutans* at Hilbre Island; and on *Lucernaria* at the south end of the Isle of Man]. Separate Report, 1892, pp. 23 and 27; reprinted in Trans. Liverp. Biol. Soc., vol. 6, 1891-2, publ. 1892, pp. 30 and 34; and in vol. 3 of Reports on Fauna of Liverpool Bay, 1892, pp. 21 and 25.

W. A. HERDMAN AND J. A. CLUBB.

Cheshire.

[*Clava multicornis* noted at Hilbre Island, in their] **Second Report on the Nudibranchiata of the L.M.B.C. District.** Proc. Liverp. Biol. Soc., vol. 3, 1888-89, publ. 1889, p. 231; reprinted, with pagination altered to 104, in Second Report on Fauna of Liverpool Bay, 1889.

THOS. HIGGIN.

Isle of Man, Cheshire, Lanc. W.

Report on the Porifera of the L[iverpool].M.B.C. District [begins with a bare list of 39 species, followed by detailed notes upon them; some are for North Wales localities only]. First Report on Fauna of Liverpool Bay, 1886, pp. 72-94.

H. H. HIGGINS.

Cheshire, Lanc. S.

Pioneers in Local Biology [giving bibliographical notes of work done in the investigation of the Fauna of Liverpool Bay; special note on *Actinia troglodytes* in Cheshire localities, *Cydippe pileus*, *C. pomiformis*, *Beroë ovata* and *Alcinœ vermiciformis* at Woodside and Birkenhead, and *Clava multicornis* at Dingle]. First Report on Fauna of Liverpool Bay, 1886, pp. 16-31.

W. E. HOYLE.

Northumberland.

On the Deep-water Fauna of the Clyde Sea-area [with mention of *Dicoryne conferta* (Alder) and *Suberites ficus* (Johnst.) as species of Northumberland]. Journ. Linn. Soc., Zool., No. 123, Dec. 31st, 1889, xx. 461.

GEORGE JOHNSTON.

Cheviotland.

Selections | from the | Correspondence | of | Dr George Johnston |
 . . . | . . . | Collected and Arranged by his Daughter | Mrs. Barwell-
 Carter | Edited by James Hardy, LL.D. | . . . | Edinburgh | . . . | 1892
 8vo., pp. xxxv. + 547 and portrait; note at p. 15 of *Alcyonium gelatinosum* in Berwick Bay; and at p. 329 of an *Actinia* at Birkenhead which may be *A. viduata*].

P. M. C. KERMODE.

Isle of Man.

Address by the Retiring President . . . Delivered . . . March 11, 1886 [gives titles of papers dealing with the Manx Fauna; *Tealia crassicornis*, *Actinia mesembryanthemum*, *Actinoloba dianthus*, *Capnea sanguinea*, are specially mentioned as additional and unrecorded forms]. Back Trans. I. of Man N.H.S., i. 71; publ. with No. 4 of Yn Lioar Manninagh, Oct. 1889.

H. WALLIS KEW.

Linc. N.

A Half-Day's Ramble on the Lincolnshire Coast [at Mablethorpe, April 3rd, 1886; *Tealia crassicornis* var. nov. *subobscura* T. D. A. Cockerell (description given) noted]. Nat., June 1886, p. 172.

- J. M. KIRK. York S.W.
Microscopic Life at Askern, May 20th, 1886 [included *Hydra fusca*].
 Nat., July 1886, p. 213.
- J. M. KIRK. York S.W.
[Hydra vulgaris noted by] The Yorkshire Naturalists' Union at Hatfield Chace [21st Sep., 1887]. Nat., March 1888, p. 89.
- J. M. KIRK. York Mid W.
[Hydra vulgaris noted by] The Yorkshire Naturalists' Union at Harrogate [13th July, 1889]. Nat., Aug. 1888, p. 244.
- J. E. LORD. Isle of Man.
The Gem Pimplet (*Bunodes gemmacea*) [at Douglas Bay, Isle of Man, with *Actinia mesembryanthemum*, *Tealia crassicornis*, *Actinoloba dianthus*, *Anthea cereus*, etc.]. Nat. World, Sep. 1885, p. 180.
- J. E. LORD. Lanc. S.
Notes on the Rotifera. (A Prolific Pond.) [at Rawtenstall; the only Cœlenterate inhabitant mentioned is *Hydra vulgaris*, which is common].
 Sci. Goss., Aug. 1887, pp. 185-6.
- C. L. LORD. York S.W.
Microscopic Pond-Life in Winter [at Hook, near Goole; *Hydra viridis* noted]. Sci. Goss., May 1892, p. 115.
- W. R. MELLY, J. SIBLEY HICKS, and [W. A.] HERDMAN. Cheshire, Lanc. S. and W.,
Isle of Man.
Report on the Hydroida of the L[iverpool]. M. B. C. District [gives introductory remarks and statistics, followed by detailed notes on 62 species].
 First Report on Fauna of Liverpool Bay, 1886, pp. 95-113.
- J. I. NEWTON. Lanc. S.
Rambles during the Year 1887.—Ashton-under-Lyne [30th July; *Hydra vulgaris* noted in ponds near Ashton Moss]. Ann. Rep. Manch. Microsc. Soc. for 1887, publ. 1888, p. 67.
- ARTHUR S. PENNINGTON. Northumberland, Durham, Yorkshire, Lancashire, Westmorland,
Cumberland, Cheshire, Isle of Man.
**British Zoophytes: | an introduction to the | Hydroida, Actinozoa, and
 Polyzoa | found in Great Britain, Ireland, and | the Channel Islands. |
 | | | | Lovell Reeve & Co.,
 London: | . . . | 1885 [8vo., pp. xvi. + 363 and 24 plates; numerous
 localities given for the north of England].**
- E. P. QUINN. Lanc. W.
['The Sea Anemone, Dianthus,' on the jetty of the South Pier at Blackpool]. Ann. Rep. Manch. Microsc. Soc. for 1885, publ. 1886, p. 5.
- E. P. QUINN. Cheshire.
Rambles during the Year 1887.—Ashley [June 11th; where in ponds occurs *Hydra*]. Ann. Rep. Manch. Microsc. Soc. for 1887, publ. 1888, pp. 63-4.
- M. H. ROBSON. Northumberland S.
Additions to the Local Fauna and Flora, with Remarks on some New Habitats, etc. [*Hydra*, a pearly white form found with *H. viridis* in a pool in Jesmond Dene and in Broomley Lough]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 8, pt. 1, publ. 1884, pp. 186 and 189.
- THOMAS SHEPHEARD. Cheshire.
Note on Spongilla, etc. [as observed on the roots of large trees in the Serpentine at Eaton Park, Cheshire, July 1885]. Nat., Aug. 1885, p. 309.
- M. H. STILES. York S.W.
[Zoophytes observed by] Yorkshire Naturalists at Askern [15th June, 1893: *Hydra viridis* and *H. vulgaris*]. Nat., Oct. 1893, p. 293.

HERBERT STONE.

Cheshire.

Birmingham Natural History and Microscopical Society [*Tubularia indivisa* from Hilbre Island]. Midl. Nat., Aug. 1889, p. 195.

GEORGE SWAINSON.

Isle of Man.

Sponges [with a reference to *Grantia compressa* found at Port Erin, Isle of Man]. West. Nat., July 1887, p. 131.

GEORGE SWAINSON.

Lanc. W.

Saunterings along the Coast. I.—Ribble Estuary [between Lytham and St. Annes, in March, *Hydralmannia falcata*, *Sertularia argentea*, *S. operculata*, *Diphasia pinnata*, *Aglaophenia pluma*, *Clava squamata*, and *Obelia flabellata*, and the 'Crumb of Bread' sponge (*Amorphina panicea*) noted]. West. Nat., Sep. 1888, pp. 203-205.

GEORGE SWAINSON.

Lanc. W.

Saunterings along the Coast. II.—Blackpool [*Anthea cereus*, *Actinia equinea*, *Tubularia indivisa* and *Cydippe* (with woodcut) noted]. West. Nat., Oct. 1888, pp. 231, 232, 234.

GEO. SWAINSON.

Isle of Man.

On the Dalby Rocks. I.—Amongst the Sea Anemones [*Actinia equina* (with woodcut), *Tealia crassicornis*, *Actinoloba dianthus* var. *brunnea*, *Sagartia bellis*, *Bunodes gemmaceus*, and *Anthea cereus*, referred to biologically; *Stauridium productum*, *Campanularia angulata*, *Corymorpha nana*, *Hydractinia echinata*, *Clytia johnstoni*, *Obelia dichotoma*, *O. geniculata*, *Campanularia flexuosa*, *Halecium halecinum*, *Sertularia pumila*, *S. operculata*, *S. argentea*, *Diphasia rosacea*, *Sertularella polyzonias*, *Sagartia miniata* var. *ornata*, *S. venusta*, *Anthea cereus* vars. *smaragdina*, *sulphurea*, and *rustica*, *Actinia equina* var. *hepatica*, *Tealia crassicornis* var. *insignis*, *Alcyonium digitatum*, *Bolina hibernica*, *Amorphina panicea*, *A. caruncula*, *Isodictya fistulosa*, *Halichondria incrustans*, *Grantia compressa*, *Sycon ciliata*, and *Leucandra fistulosa* enumerated as found in Aug. 1888]. West. Nat., Nov. 1888, pp. 262-267.

G. SWAINSON.

Isle of Man.

Results of Dredging Excursion to Dalby, Aug., 1888 [enumerated; of Sponges, seven species of *Amorphina*, *Isodictya*, *Halichondria*, *Grantia*, *Sycon*, and *Leucandra*; of Hydrozoa, 14 species of *Stauridium*, *Campanularia*, *Corymorpha*, *Hydractinia*, *Clytia*, *Obelia*, *Halecium*, *Sertularia*, *Diphasia*, and *Sertularella*; of Actinozoa, 10 species and varieties of *Actinoloba*, *Sagartia*, *Anthea*, *Actinia*, *Bunodes*, and *Tealia*; of Alcyonaria, one, *Alcyonium digitatum*; and one Ctenophore—*Bolina hibernica*]. Vannin Lioar, Jan. 1889, p. 14.

GEO. SWAINSON.

Lanc. W.

Saunterings along the Shore. III. Corallines, White and Red Corals, Sea Pens, &c. [*Alcyonium digitatum* at Fleetwood and Blackpool]. West. Nat., Jan. 1889, p. 332.

GEO. SWAINSON.

Lanc. W.

Dredging off Puffin Island for the Rosy Feather-Star [with note of occurrence of *Tubularia larynx* near Blackpool]. West. Nat., July 1889, p. 138.

GEO. SWAINSON.

Isle of Man.

Sponge Hunting on the Manx Coast. Peel and Port St. Mary [*Leuconia nivea*, *Desmacidon incrustans*, *Halichondria panicea*, *Cliona celata*, *Tethya cranium*, *Raphyrus griffithsia*, *Isodictya*, *Leucandra gossei*, *Ascetta coriacea*, *Grantia compressa*, *Sycon ciliata*, *Pachymatisma johnstonia*, *Clathria seriata*, and *Halisarca dujardini* noted; others also by English names, as 'Crumb of Bread' Sponge and its orange relative]. Wesley Nat., Oct. 1889, pp. 193-199, with plate; and Yn Lioar Manninagh, Oct. 1889, p. 105.

GEO. SWAINSON.

Isle of Man.

Among the Sea-Urchins [at Port Erin, Isle of Man; *Alcyonium digitatum* mentioned]. Journ. of Microsc., Jan. 1890, p. 10.

M. L. SYKES.

Lanc. S.

Rambles during the Year 1887.—Worsley [27th Aug. ; *Hydra fusca* and *H. viridis* noted in ponds]. Ann. Rep. Manch. Microsc. Soc. for 1887, publ. 1888, p. 68.

JOHN TATHAM.

Lanc. S.

The President's Address [noting *Hydra vulgaris* at Gorton, April 10th, 1880]. Ann. Rep. Manch. Microsc. Soc. for 1884-5, pub. 1885, p. xvi.

—. TOOKER.

Isle of Man.

[Hydra viridis discovered swarming in a pond by the Santon Burn, Good Friday of 1889]. Yn Lioar Manninagh, July 1889, p. 69.

E. H. TURNER.

Cheshire.

[Hydra fusca in a pond at Bramhall, 2nd July, 1887, visited by Manchester Microsc. Soc. ; its parasites (*Kerona polyporum* and *Trichodina pediculus*), and its vitality treated on at length]. Nat. Monthly, Oct. 1887, pp. 39-40.

E. H. TURNER.

? Cheshire.

Kerona polyporum : parasite on Hydra fusca [at Bramhall, 2nd July, 1887]. Ann. Rep. Manch. Microsc. Soc. for 1887, publ. 1888, p. 34.

W. BARWELL TURNER.

York S.E.

[Hydroid Zoophytes and Sponges observed by] The Yorkshire Naturalists' Union at Spurn Point [3rd Sep., 1884 ; *Campanularia serpens* (?), *Plumularia falcata*, *P. cristata*, *Antennaria antennina*, *Sertularia abietina*, *S. filicina*, *S. operculata*, *Halecium halecinum*, *Grantia pulverulenta*, *Spongia limbata*, *Halichondria ramosa*, and *H. panicea*]. Nat., Nov. 1884, p. 93.

J. STANLEY TUTE.

York Mid W.

Microscopic Fauna and Flora of Markington, Mid-West Yorkshire [*Hydra viridis* and *Spongilla fluviatilis* enumerated, with localities]. Nat., May 1890, p. 152.

ALFRED O. WALKER.

Lanc. S. or Isle of Man.

[Suberites domuncula Schmidt, recorded as on Pagurus cuanensis dredged, 28th Aug., 1886, at two points between Liverpool and Isle of Man ; in] Report on the Crustacea of Liverpool Bay, 1886-1887. Proc. Liverp. Biol. Soc., vol. 2, 1887-8, p. 179 ; reprinted in Second Report on Fauna of Liverp. Bay, 1889, p. 179.

ALFRED O. WALKER.

Isle of Man.

[Alcyonium digitatum and Asterias rubens noted for the Isle of Man, in] Third Report on the Higher Crustacea of the L.M.B.C. District. Proc. Liverp. Biol. Soc., vol. 3, 1888-89, publ. 1889, pp. 198 and 207 ; reprinted with pagination altered to 71 and 80, in Second Report on Fauna of Liverpool Bay, 1889.

CHARLES H. H. WALKER.

Isle of Man.

Tiding at Easter-tide [in the Isle of Man ; *Tealia* (mis-spelt *Telea*!) *crassicornis* and *Alcyonium digitatum* mentioned as seen]. Young Nat., July 1890, p. 123. [*Sagartia troglodytes*, *Pachymatisma johnstonii*, '*Suberitis domuncula* (sp. ?)', *Ascandra botryoides*, *Sycandra ciliata*, and *Leucandra nivea* noted]. Young Nat., Nov. and Dec. 1890, pp. 216-222.

G. W. WOOD.

Isle of Man.

Record of additional Hydroida from the Isle of Man [of which five, viz., *Tubularia attenuata* Allm., *Campanularia* (?) *ravidentata* Ald., *Halecium tenellum* Hincks, *H. muricatum* Ell. & Soll., and *Sertularella tenella* Ald. are new to the L.M.B.C. area, and seven others, viz., *Tub. coronata* Ab., *Obelia geniculata* L., *O. longissima* Pall., *Diphasia pinaster* Ell. & Soll., *D. tamarisca* L., and *Sertularia compressa* L. are new for the Isle of Man ; notes also on *Sert. argentea*, *Thuiaria articulata*, and *Aglaophenia myriophyllum*]. Trans. Liverp. Biol. Soc., vol. 6, 1891-92, publ. 1892, pp. 94-95 ; reprinted in vol. 3 of Reports on Fauna of Liverpool Bay, 1892, with pagination altered to 48-49.

THE RARER PLANTS OF
THE WALKERINGHAM NEIGHBOURHOOD
IN
NOTTINGHAMSHIRE, LINCOLNSHIRE, AND YORKSHIRE.

THE LATE REV. J. K. MILLER.

EDITED, WITH NOTES, BY THE REV. E. ADRIAN WOODRUFFE-PEACOCK,

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WHILE seeking for records and specimens left by former lovers of Lincolnshire plants for my *Locality Register* and the *County Herbarium*, I came across the following valuable little manuscript left by the late Rev. Joseph Kirkman Miller. It is entitled *Flora Walkeringhamiensis*, and has been kindly lent to me by the son of the writer—Mr. George Miller, of Holcombe, Bath—with full permission to publish its contents if I thought it expedient to do so.

The author was Vicar of Walkeringham, Notts, from 1819 to 1855. He took his degree at Cambridge in 1808, being 7th Wrangler, and was for some time Fellow of Trinity. An accurate, patient, and painstaking botanist, as his manuscripts show—where he questioned (?) everything he was not absolutely sure of, until he was quite satisfied as to its specific character, and finally left some entries as at first written with the sign of doubt still standing—Mr. Miller was apparently most careless of the specimens which he gathered, giving many of them away, when verified, to his friends in the neighbourhood, who seem to have formed a kind of botanical club. Those that have passed through my hands are without a single exception correctly named, though some difficult and rare species are questioned; and I have followed so often in his footsteps whilst botanizing in this county that I cannot possibly doubt his accuracy when his records are new or unexpected.

Mr. Miller's only contribution to botanical literature, that I am aware of, is the first part of the list of rare plants published in the late Sir C. J. H. Anderson's *Short Guide to the County of Lincoln*, Gainsborough, 1847. The first and final draft of this list are still along with his other botanical papers. To the catalogue of plants found in the *Flora Walkeringhamiensis* is added a record, contained in a separate manuscript, of thirty other species observed on a visit to Thorne Moor or Waste on July 15th, 1840. I feel I have authority to include them all, as in many instances Mr. Miller has himself done so. The final catalogue thus obtained is here printed

in the order, and with the nomenclature of the eighth edition of the *London Catalogue*. As the author says he followed Sir James Smith's *English Flora* there can be no fear of making mistakes by using the now more generally received generic and specific names. All notes not in the original are added in brackets and initialed, with the exception of the name of the county. When I myself have seen the plants growing, or specimens from the locality, or within a mile radius—if within the county referred to—I have added the personal mark (!) of verification. If specimens from the *exact spot* named are lying in the *Lincolnshire County Herbarium*, I have indicated the fact by a dagger (†). Those from the Walkeringham neighbourhood are for the most part from two Herbaria. A small collection made by the late Mrs. Maria Gamson, of Misterton, Notts, a friend of Mr. Miller's, and kindly given to me by Miss M. A. Gamson, her daughter; and from another practically unlocalized collection made in early life, as he worked along with the Vicar of Walkeringham, by the Rev. Thomas Owston, at that time Curate of Gringley-on-the-Hill, Notts, and late Rector of Sutterby, Lincolnshire. These plants were presented to me by the Rev. G. G. Walker, Vicar of Huttoft, Lincolnshire, to whom my best thanks are due. Of Mr. Miller's own plants, referred to under *Spiranthes*, I can learn nothing. For 'first record' purposes this catalogue dates from 1840. Later notes of localities are rarely added in quite a different ink, but always in Mr. Miller's own handwriting, and for the purpose of confirming earlier records.

The following is an explanation of the initials used:—F.E., Rev. Francis Hewgill, at that time Rector of Saundby—a great friend of the writer's; T.O., or sometimes Mr. Owston, the Curate of Gringley referred to above; S.M., Mrs. Susan Miller, the wife, and Misses Susanna A. and Mary Stewart Miller, the daughters, and John Joseph and Thomas Elton, the sons of Mr. Miller.

I have to thank Mr. George Miller, of Holcombe, Bath, for the use of his manuscripts and for all kinds of information incidental to its publication; the Rev. W. A. Rouse, the present Vicar of Walkeringham, Mr. E. P. Watson, of Londonthorpe, Grantham, and Mr. C. Tonge, of Kirton-in-Lindsey, for the topographical notes which have made it possible for me to identify many of the spots named.

Thalictrum flavum L. By the ditch side going from Morton to Beckingham, by the marsh! Notts.

Ranunculus Lingua L. Dikes in Misson parish,† Notts. Mr. Owston (the *Lincs. County Herbarium* specimen is from his collection.—E.A.W.-P.). Not far from Misson, by the causeway side from Idle Stop, Notts. Braford Water, close by Lincoln!

Corydalis claviculata DC. Barrowhill Wood, Notts.—S.A.M.

- Nasturtium sylvestre** R.Br. Trent side, near the Union Oil Mills, Lincs. By 'No Man's Friend,'* Lincs. And nearly opposite Morton,† Notts.
- Nasturtium palustre** DC. Marsh land between Haxey Gate and Wroot! Lincs. Mr. Rayner's garden, Saunby, Notts, has it as a troublesome weed.
- Nasturtium amphibium** R.Br. Ditch, near Morton,! Lincs. Trent side by Mr. Walker's Counting House, Lincs.
- Cardamine amara** L. Canal, near Claborough, Notts; and elsewhere by the side of it.
- Sisymbrium Sophia** L. Entrance of Ropery Lane from Morton,! Lincs. On Gringley Carr, near Mr. Watson's farmhouse, Notts.
- Erysimum cheiranthoides** L. Misterton Carr,† Notts.
- Camelina sativa** Crantz. By the side of the great dike leading from Runslet‡ Sluice! towards Greenhill Farm, Lincs.
- Senebiera Coronopus** Poir. Cross lane from Beckingham to Walkeringham by the marsh! Notts.
- Thlaspi arvense** L. Misterton Carr, going to Mr. Cross's farm, over the bridge next to the wharf bridge—a good way on. Notts.
- Reseda lutea** L. Trent side, nearly opposite Morton,† Notts.
- Reseda Luteola** L. Hedge-side just below Saundby Bar, and with *R. lutea* L., going to Clayworth; both stations Notts.
- Helianthemum Chamæcistus** Mill. About Hayton Castles, Notts. Scotton Common,! Lincs., near the 40 foot.—J.J.M.
- Viola palustris** L. Laughton Common! Lincs.
- Viola hirta** L. The Castles Hills, near Gainsborough! Lincs. Common.
- Viola flavicornis** Sm. Misterton Carr,† T.O.; Gringley fox cover; both Notts.
- VIOLA LACTEA* Sm. Between Misson and Misterton, Notts.; found by Mr. Owston. [I have his own beautiful specimen in *The County Herbarium*; it is typical **V. stagnina** Kit. of our more modern nomenclature, verified by Mr. W. H. Beeby].
- Stellaria aquatica** Scop. Mrs. Moody's farm, near Gringley Carr dikes, Notts.

* 'A bend of the River Trent at Morton—a "crux" for navigation—was so named by my father.' -G.M.

‡ 'The local pronunciation of Ravensfleet.'—G.M.

Stellaria palustris Ehrh. Gringley Carr dikes † and in an open dike near Scrooby; both in Notts. Between Willingham and Normanby, Lincs., in the right-hand hedge; on Laughton Common! in the Peacock Hole; and marsh dikes *passim*, Lincs.!

Stellaria uliginosa Murr. Morton Carr! Lincs.—M.S.M.

Arenaria trinervia L. Green Lane, between Walkeringham Fox Cover and Misterton Gate, near bottom end, Notts.—M.S.M.

Sagina nodosa E. Mey. Beyond Stockwith, Haxey Road.—F.H.
[No doubt in both Notts! and Lincs.—E.A.W.-P.]

Montia fontana L. Laughton Common, Lincs. [Not yet confirmed—but not uncommon in Lincs.—E.A.W.-P.].

Hypericum humifusum L. Laughton Common, Lincs.—M.S.M. and others.

Hypericum elodes Huds. Laughton Common! Lincs.

Geranium pratense L. Common. Lincs.! and Notts!

Euonymus europæus L. Lane going from Canal Bridge at Walkeringham Wharf into the Carr, Notts.—Mr. Owston.

Rhamnus catharticus L. Green lane near warping drain going from Morton to Walkerith, Lincs. Road-sides towards Gringley, Notts. Lanes from Laughton to the Carr, Lincs.

Rhamnus Frangula L. Lea Wood, Lincs. Thorne and Hatfield Moors, Yorks.—T.E.M., jr.

Medicago maculata Sibth. Walkeringham Moor Drain, near S. Spencer's.—S.M.

Trifolium subterraneum L. Pasture going down from Lea Wood to the road, Lincs. [This spot is now ploughed up, but the record was confirmed by the Rev. R. H. Charters first.—E.A.W.-P.]. Also in the Vicarage lawn, Walkeringham; not found since. [May not Mr. Miller have unconsciously sown this species on his lawn from the Lea station? The Rev. F. S. Alston sent me by post a green specimen of *Anthriscus Cerefolium* Hoffm., from Wispington, its only Lincs. locality in 1893; this year (1894) it has appeared in my garden.—E.A.W.-P.]

Trifolium striatum L. In a field north of Harewell Hill, Everton, at the foot of it.

Anthyllis vulneraria L. Road from Scotton Common! to Scotter, and from Scotter to Messingham! Lincs. Also second close from Mr. J. Cross's cottages, at the bottom of Gringley Hill on the right hand, and quite a crop beyond Barrowhill and beyond Harewell! Notts.

Astragalus glycyphyllos L. Castle hills, Gainsborough ! and going from Lea to Knaith ! by the footpath side ; both Lincs. In Hayton Lane, near the Canal Bridge, Clayworth, Notts.

Ornithopus perpusillus L. Morton Carr, near Col. Cope's plantation, and between Laughton ! village and Laughton Wood, both Lincs.

Vicia sylvatica L. Gringley Wood ; first beyond the lock on the Gringley side, Notts.

Vicia segetalis Thuill. Plantation road to Laughton Common, not far from the entrance to the Common ! Lincs. In a field to the N. of Harewell Hill, Everton,† at the foot of it, Notts.

Spiræa Filipendula L. Meadow by the road-side, Thonock ! hamlet, Lincs.

Rubus Idæus L. On the Thorne side of Thorne Moor, Yorks.

Rubus plicatus W. and N. Common about the turf moors, both Thorne and Hatfield, Yorks. [This I believe to be a mistake.—E.A.W.-P.]

Rubus cæsius L. Hedges near Barwell Springs, Notts.

Potentilla argentea L. On the Barrow Hill, beyond Harewell, and on Harewell Hill, Notts.

Potentilla comarum Nestl. Laughton Common,† Lincs. ; and Thorne Moor ! Yorks. [Also Mattersey,† Notts.—E.A.W.-P.]

Alchemilla vulgaris L. In the Cowslip close, near Gringley fox cover, by the path-side, Notts.

Poterium officinale Hook. f. Trent side and meadows, between Morton and Beckingham ! Notts.

Rosa tomentosa Sm. Barwell Springs, Notts.

Rosa rubiginosa L. Bottom of John Butler's close, going from Walkeringham to Beckingham, and also higher up in the field, Notts.

Pyrus torminalis Ehrh. A few yards from the footway stile, which separates the parishes of Gringley and Walkeringham, on the left hand going to G., in the hedge.—T.E.M., jr. A large tree in the hedge on this side of 'Botany Bay,' Walkeringham, Notts.

Saxifraga tridactylites L. Churchyard wall, Walkeringham ; abundant on the N. side of the roof, William Wistow's cottage, Notts.

Sedum Telephium L. Barrowhill Wood, near Everton, Notts.—M.S.M. [I have **S. purpurascens** Kock. † from Harewell Hills.—E.A.W.-P.]

Drosera rotundifolia L., **D. anglica** Huds., **D. intermedia** Hayne. Are all found on Laughton Common,† Lincs., and all over Thorne Waste! Yorks.

Hippuris vulgaris L. Left-hand ditch going from the Union Oil Mill to Mrs. Torr's house, Lincs.; Gringley Carr dikes, Notts.

Lythrum Salicaria L. ♂ Pools near Walkerith, by the Trent bank! and Laughton Common! ♀ Both Lincs. Thorne Waste! Yorks. [Misterton,† Notts.—E.A.W.-P.]

Epilobium angustifolium L. Lindholme [Notts. or Lincs., or perhaps both, as it is just on the boundary.—E.A.W.-P.] and Thorne Turf Moors! Yorks.—Mr. Owston.

Epilobium palustre L. Thorne Moor! Yorks.

Circæa lutetiana L. Wharton Wood! Lincs.

Bryonia dioica L. Near Scotter! Between Lea and Knaith! also on the Trent side near Knaith! All Lincs.

Hydrocotyle vulgaris L. Scotton and Laughton Commons! Lincs.; Gringley Carr! Notts; and Thorne Waste! Yorks.

Apium graveolens L. East side of ditch at Walkeringham, Notts, in three places. Native? [Certainly, if I may judge from its Lincs. distribution.—E.A.W.-P.]

Apium inundatum Reichb. Gringley Carr dikes, Notts. Peacock Hole on Laughton Common! Lincs.

Carum Carui L. Field by the Trent side, near Walkerith Ferry † on the road to Stockwith, Lincs. Notts side, also, nearly opposite Morton Common. [It is an alien, but has been with us since Ray's time, 1661, growing freely.—E.A.W.-P.]

Sium erectum Huds. Humble Carr Lane, Lincs., and pond in Mr. Draper's field, Beckingham, Notts.

Pimpinella major Huds. Canal side, near Drakolds, Notts. [Drakolds is often written Drakeholes.—E.A.W.-P.] Morton Terrace, near Mr. Todd's gate, Lincs. Ditch near Beckingham, on road to Walkeringham, just beyond J. Milner's, Notts.

Œnanthe fistulosa L. Marsh ditches between Morton and Walkeringham† Common, Notts.

ŒNANTHE PIMPINELLOIDES Sm. or

ŒNANTHE PEUCEDANIFOLIA Sm. Barwell Springs, Notts. [This entry shows Mr. Miller's accuracy. His plant was no doubt the former, i.e., **Œ. Lachenalii** Gmel., of our more modern nomenclature. I have it from Misterton,† Notts; and on this

specimen the former of Smith's names was first given, then crossed out and the latter added. The first, according to the then received nomenclature, was undoubtedly right. It is not uncommon in Lincs. still.—E.A.W.-P.]

Ænanthe crocata L. In the boundary, near the garden—Mr. Casson's—among and beyond the plantation nearest to it, on Thorne Waste, Yorks.

Ænanthe Phellandrium L. The delf [in the Trent.—E.A.W.-P.] and marsh ditches,† Notts.

Caucalis nodosa Scop. Pingle hill ! Lincs. Between Mr. Torr's and Dr. Cox's, Notts.

Sambucus Ebulus L. Home close, Walkeringham, Notts.

Lonicera Periclymenum L. Lea Wood ! and Wharton Wood ! both Lincs.

Galium saxatile L. Thorne Waste ! Yorks.

Aster Tripolium L. Ditches near East Butterwick ! going to Messingham. Warping drain end at Ravensfleet ! Both Lincs.

Inula Helenium L. Trent side near Walkerith Ferry, gone ; and a close of Mr. Spencer's, near Oaks lane [Walkeringham.† —E.A.W.-P.]

Bidens cernua L. Ferry Flash, Scotton Common, Lincs.

Chrysanthemum segetum L. Near Stourton [i.e., Sturton-le-Steeple, Notts, I believe.—E.A.W.-P.].

Senecio sylvaticus L. Ropery Lane Ditch, and Morton Carr Lane, particularly near Col. Cope's Farm, and Laughton Common ! all Lincs. Thorne Waste, Yorks ? The aromatic scented radiant species (do.). [The ? refers to the species only, the brackets are Mr. Miller's.—E.A.W.-P.]

Carduus nutans L. Road-sides ; especially between Haxey Gate and Misson, Notts.

Cnicus eriophorus Hoffm. Side of the road by Dr. Coxe's, Notts. Not found since.

Cnicus pratensis Willd. Laughton Common, ! Lincs.

Onopordon acanthium L. Road-side near Morton. Thonock Lane, and in a field near Lea Church ; all Lincs. Not found lately ; 1842.

Cichorium Intybus L. Lane leading from Morton to Spittal road turnpike, Lincs. Between Walkeringham and Gringley, near the Misterton† turnpike, Notts.

Picris echioides L. Ditches from Walkerith to Walkeringham, Notts.

Lactuca virosa L. Between Beckingham and Saundby Bar, on the right hand ; since disappeared ; Notts. On Corringham Scroggs, Lincs.—J.J.M. Lane going from Clayworth to Hayton, Notts.

Jasione montana L. Lane between Mattersey and Everton, about half way, in a field at the bottom of Posto Hill, Notts.

Campanula glomerata L. Trent side, between river and causeway going to Walkerith, Lincs. Not found since.

Campanula latifolia L. River-side, just beyond Pear Tree Bar. [Which is in Beckingham, Notts, I am told.—E.A.W.-P.]

Vaccinium oxycoccus L. Thorne Waste ! Yorks.

Andromeda Polifolia L. Lindholm, near Wroot ; Mr. Owston. Thorne turf-moors ; abundant. [Lindholm stands just on the borders of Notts, Lincs., and Yorks. ; but actually in the first-named county. I cannot help thinking that Mr. Miller intended to imply the plant was a native of Lincs., by adding ‘near Wroot’ to his description of the spot. He knew it grew ‘abundantly’ in Yorks. ; and had he intended to imply it was found in Notts, why did he not add the name of the most northern parish, in which Lindholm actually stands, and the species under the circumstances must have been found ? It is not in his *List* in Anderson’s *Short Guide*, but neither are *Onopordon Acanthium* L. or *Solanum nigrum* L. and others, found in this catalogue, but followed by a later entry, ‘not found since.’ Mr. Miller himself had not found the *Andromeda* or verified it as a local Lincs. plant. The Owston Coll. does not settle the point. There are two specimens—one mounted and localised ‘Hatfield Turfmoor’ ; the other unmounted and without any note of time or place. After this was written the Rev. W. Fowler wrote to me in June, 1894, saying, ‘*Andromeda* is all right for Lincs.’ He had received a specimen from Mr. Samuel Hudson, of Epworth, who gathered it near the Holme Farm, north of the Star Carr, in that parish, and has himself gathered it since, in Epworth Turbary. ‘This spot is within less than four miles of Mr. Owston’s locality, wherever that was ; and I have not the least doubt *Andromeda* was found in Wroot by him about 1840.—E.A.W.-P.]

Calluna Erica DC., **Erica Tetralix** L., and **E. cinerea** L. Scotton ! and Laughton ! Commons, and Morton Carr ! ; all Lincs.

Pyrola rotundifolia L. In the lane leading through the fir plantations to Laughton Common, in the ditch on the left hand, about 100 yards beyond the white gate coming in from Green Hill farm—J.J.M. [The only Lincs. species I have seen is *P. minor* Sw.—E.A.W.-P.]

- Hottonia palustris** L. Most of the ditches in the marsh, Notts side. [Just as common on the Lincs.—E.A.W.-P.]
- Lysimachia thyrsiflora** L. South side of Keadby canal, between Keadby and Crowle Wharf, abundant.—T.E.M., jr. [Mr. F. A. Lees, the Rev. W. Fowler, and I have sought in vain for this plant on four different occasions. It is recorded for no other locality in Lincs.—E.A.W.-P.]
- Lysimachia vulgaris** L. Thorne side of Thorne Moor, Yorks., 16-7-40.
- Lysimachia nemorum** L. Gringley Fox-cover, and the ditch of the field below it near the Gringley end, Notts.
- Anagallis tenella** L. Laughton Common,† Lincs. Between the Idle Stop and Misson, Notts. [Misterton,† Notts.—E.A.W.-P.]
- Samolus Valerandi** L. Gringley Carr ditches and road to Misson beyond Haxey Gate, Notts. Scotton Common! Lincs.
- Gentiana Pneumonanthe** L. Scotton Common† and Morton Carr, and road leading to Laughton Common, beyond Mr. Williamson's plantation; all Lincs.
- Gentiana Amarella** L. Last Walkeringham close, footway to Beckingham; also in a close on the footway from Walkeringham to Gringley; both Notts.
- Menyanthes trifoliata** L. Laughton Common,† Lincs. Thorne end of the Waste! Yorks.
- Symphytum officinale** L. Morton Village street! Lincs.
- Lycopsis arvensis** L. Scotter! just by the first house; rear of the Union Oil Mills; both Lincs. Going to Gringley, right hand beyond the Grange,† Notts.
- Myosotis versicolor** Reichb. On Laughton Common! Lincs.—M.S.M. and others.
- LITHOSPERMUM ARVENSE* (blue corolla). The Gringley sand-pit, behind the Schoolhouse, Notts. Near Col. Cope's plantation Laughton Common, Lincs. [I suppose **L. purpureo-cœrulum** L. was the plant—an escape. I have seen it in old gardens in Lincs., but never as an escape.—E.A.W.-P.]
- Lithospermum officinale** L. Near Walkeringham Fox-cover, Notts.
- Solanum nigrum** L. Sandy road between Mr. Spurr's and Lea, Lincs. Not found since. [Common enough on Laughton Common †—E.A.W.-P.]
- Hyoscyamus niger** L. Here and there by the road-sides. In Mr. Brett's stackyard, Walkeringham, Notts. [Sporadic in Notts, I imagine, as it is throughout Lincs.—E.A.W.-P.]

Linaria vulgaris L. status **Peloria**. Lane leading from Laughton Common, beyond Petché's farm.—J.J.M.

Scrophularia nodosa L. Warton Wood, Lea! Lincs. Canal side, near Drakolds [i.e. Drakeholes.—E.A.W.-P.], also Gringley Fox-cover; both Notts.

Veronica anagallis L. Humble Carr Lane, Lincs. Pond in Mr. Draper's field, footway to Beckingham, Notts.

MELAMPYRUM PRATENSE L. or *SYLVATICUM* L. Thorne Waste! Yorks., 16-7-40. [This plant is found on the Goole side of the moor, and is small, approaching *M. montanum* Johnst., having 'small blossoms of a nearly uniform rich yellow,' as Mr. Miller adds in a note. The plant I found was a **M. pratense** L. form certainly.—E.A.W.-P.]

OROBANCHE ELATIOR Sutton (?) Harewell Hill†; Barrow Hill end on the further side, descending towards Bawtry, Notts. [I have his specimen, and Mr. Ar. Bennett *thinks* it is **O. rubra** Sm.—E.A.W.-P.]

Orobanche major L. Like the last, but nearer Harewell†, Notts. [Mr. Ar. Bennett agrees with Mr. Miller here.—E.A.W.-P.]

Utricularia vulgaris L. In the Trent Delf, near the flood-arches, Gainsborough Bridge. No longer there; but in one of the dikes near way to Morton! Pond on Scotton Common!—R. Atkinson. Laughton Common!—Mr. Wood. All Lincs.

Utricularia minor L. Thorne Waste,† Yorks. Nearest great pool, with trees, on the Thorne side. [I have one of Mr. Miller's own specimens.—E.A.W.-P.]

Pinguicula vulgaris L. On Scotton Common.† Abundant. [By thousands in 1893.—E.A.W.-P.] Laughton Common in parts!

Calamintha arvensis Lam. On Barrow Hill, beyond Harewell, Notts.

Salvia Verbenaca L. Bank in Lea village† going towards the church, Lincs. Bank on the right-hand going into Gringley from Beckingham, Notts.

Nepeta Cataria L. Between Lea and Knaith, Lincs.

Scutellaria galericulata L. Cross lane from Mr. Tidd's gate towards the river. [Lincs.?—E.A.W.-P.] Gringley Carr dikes, Notts. Laughton Common, Lincs. Thorne Waste, Yorks.

Scutellaria minor L. Laughton Common, ! Lincs.

Stachys palustris L. Trent side between Union Oil Mill and Gainsborough, Lincs. Walkeringham, ditch beyond Seth Harris's, Notts.

Galeopsis speciosa Mill. At Wroot, in the Isle of Axholme, !
Lincs. Gringley Carr, and between Everton and Misson,
both Notts.

Lamium amplexicaule L. Roperly Lane, near Morton, Lincs.;
not found since. [Not uncommon in Lincs.—E.A.W.-P.] In
a field between Laneham and Dunham, Notts.

Littorella lacustris L. Furthest Pond on Laughton Common,
Lincs. [This locality is practically confirmed, for Rev. W. Fowler
found it close by on Scotton Common.—E.A.W.-P.]

Polygonum amphibium L. Pond in Mr. Taylor's close, Walker-
ingham, and in the canal near the Wharf; both Notts.

Rumex maritimus L. Mrs. Moody's farm, Gringley Carr ! Notts.
Runslet dike ! Lincs.

Rumex palustris Sm. Mrs. Moody's farm, Gringley Carr, Notts.
[This plant has often been recorded for Lincs., but all the
specimens I have seen have been *R. maritimus* L. I do not
believe there are two species; surely they are but variants from
the Linnæan type.—E.A.W.-P.]

Myrica Gale L. Laughton Common, † Lincs.; abundant. Thorne
Waste ! Yorks.

Empetrum nigrum L. Thorne Waste ! Yorks. [Isle of
Axholme, † Lincs.—E.A.W.-P.]

Hydrocharis Morsus-ranæ L. Dike, right-hand side of
Beckingham Marsh Lane from Gainsborough, and ditto Barbank ;
also in the Delf. [All Notts, unless the last is Lincs. too.—
E.A.W.-P.]

Stratiotes Aloides L. Delf, near Gainsborough Bridge, Lincs. ?
Marsh dikes going from Morton to Walkeringham, Notts.

Neottia Nidus-avis Reichb. Roche Abbey Wood, upper side,
beyond the Alcove, and near the boundary hedge, Yorks.
Broughton Wood, Lincs.—S.M. and M.S.M.

Spiranthes autumnalis Reichb. In Kangaroo Close, next
Beckingham, Notts. Only one specimen after much search
(No. 113). [This shows Mr. Miller had a collection of plants,
but what has become of it I cannot learn.—E.A.W.-P.]

Ophrys muscifera Huds. Roche Abbey Wood, Yorks. Broughton
Wood, ! Lincs.

Convallaria majalis L. Lea Wood, ! Lincs.

Allium vineale L. Barbank, Notts. Plentiful on Trent Bank
between Walkerith and Stockwith, † Lincs.

Allium oleraceum L. Trent side, † Lincs., nearly opposite Mrs. Brown's house, among osiers; also near Stockwith. [Gainsborough† is the parish; and my specimen the variety **complanatum** Bor.—E.A.W.-P.]

Allium arenarium Sm. Trent side, between the river and causeway going to Walkerith, Lincs. [This explains why *A. sibiricum* L. appeared in Mr. J. Britten's 1872 and 1882 *Lists* in White's *Lincolnshire*. It was no mismarking of a catalogue, but the 3rd *E.B.* synonym for the above species given in the Miller-Anderson *List* of 1847. It is but a larger variety of *A. Schænoprasum* L.—not uncommon in gardens, and no doubt an escape. Pishey Thompson also records it for the Boston neighbourhood; where it could only be the same.—E.A.W.-P.]

Ornithogalum umbellatum L. Trent bank, left hand, going from Walkerith to Stockwith, near the latter, † Notts side.

Narthecium ossifragum L. Laughton Common, † Lincs. Thorne Moor, † Yorks. Crowle end going to the Decoy.

Juncus subverticillatus Wulf. Thorne Moor! In the large well pit nearest the Decoy, near the birch tree end. [Mr. Miller could not identify his plant, but left a description and painted sketch. I saw it, and *J. uliginosus* Roth. on the Moor, as far back as 1873.—E.A.W.-P.]

Alisma ranunculoides L. Gringley Carr dikes, Notts. Laughton Common, in the delf made by the warping process.

Alisma ———? Gringley Carr dikes, Notts. [We have a plant of the Alismaceæ on the Lincs. side, the identity of which we have not been able to settle yet for want of satisfactory specimens. Mr. Miller's may have been the same.—E.A.W.-P.]

Sagittaria sagittifolia L. Carr dikes! Notts. Ditches etc., near Gainsborough! Lincs.

Butomus umbellatus L. Gainsborough! Bridge delf. In the Beckingham Marsh ditches! Notts.

Triglochin palustre L. Near Greenhill farm going to Laughton Common! Lincs.

Scheuchzeria palustris L. Thorne Waste, Yorks., 16-7-'40. Most abundant at a little pool nearest the Decoy, but found in others too. [I could not find it on the waste in 1875, and though I have hunted for it often have never found it in Lincs., for which it is not yet recorded.—E.A.W.-P.]

Potamogeton densus L. Near Greenhill farm going to Laughton Common, Lincs.

Scirpus lacustris L. Gringley Carr dikes and between Idle Stop and Misson; both Notts. Peacock Hole, Laughton Common, Lincs.

Eriophorum vaginatum L.! and **E. latifolium** Hoppe.! In patches on Thorne Waste, Yorks.

Eriophorum angustifolium Roth. Laughton Common! and Corringham Scroggs! Lincs.

Rhynchospora alba —. Laughton Common! Lincs. Thorne Waste! Yorks.

Cladium germanicum Schrad. Marsh Lane between Haxey Gate and Wroot! Lincs.

Glyceria fluitans R.Br. Pond in Misterton Carr, Notts, together with *Iris*, *Ænanthe*, etc.

Asplenium Trichomanes L. Chancel of Stourton Church [Sturton-le-Steeple, Notts, I believe.—E.A.W.-P.]

Asplenium Ruta-muraria L. Walls of Walkeringham Church, Notts.

Osmunda regalis L. Thorne Waste! Yorks.

Equisetum sylvaticum L. Lea Wood,† Lincs.

Equisetum limosum Sm. Marsh ditch on Barbank, right hand, near Morton, Notts. [I have seen specimens from both sides of the river, but they were always the variety **E. fluviatile** L.—E.A.W.-P.]

Mr. Miller's Flora also contained the following Fungi:—

Lycoperdon stellatum L. Thorrock Lane, opposite the great turn to Morton from Gainsborough, Lincs.

Phallus esculentus L. (Now **Morchella esculenta**, the Morel). Lane leading to Castle Hills from Morton; and in Gainsborough School shrubbery, by J.E.M., jr.

NOTE—DIPTERA.

Occurrence of Bombylius major L. at Masham.—A female specimen of this fly has been recently sent to me for identification. It was captured in the early spring of the present year at Burton House, near Masham, by Mr. James Carter.—PERCY H. GRIMSHAW, Museum of Science and Art, Edinburgh, May 8th, 1895.

NOTE—ORNITHOLOGY.

Arrival of Spring and Summer Migrants at Flamborough.—Mar. 16th, Pied Wagtail (*Motacilla lugubris*), plentiful; April 2nd, Wheatear (*Saxicola ænanthe*), very plentiful; April 6th, Redstart (*Ruticilla phæniceus*), only scarce; April 10th, Great and Lesser Whitethroats (*Sylvia sylvia* and *S. curruca*), also very scarce; April 17th, Swallow (*Hirundo rustica*), large quantity; April 23rd, Cuckoo (*Cuculus canorus*); April 24th, Willow Wren (*Phylloscopus trochilus*); May 2nd, Dotterel (*Eudromias morinellus*), a flock of seven seen in a field near to Easton Ashes, not far from Bridlington.—MATTHEW BAILEY, Flamborough, May 10th, 1895.

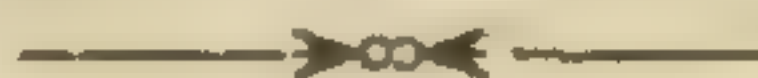
June 1895.

NOTES AND NEWS.

The varied amount of training which the boys at the Friends' School at York receive is simply marvellous, and one has only to read the annual reports of the 'York School Natural History, Literary, and Polytechnic Society,' of which the 61st, dated January, 1895, lies before us, to feel that it is hardly possible for any lad to attend such a school without finding some outlet for his natural bent of mind. It is really 'education' in the true and etymological sense of the term. The natural history notes made are numerous and many of them valuable.



Amongst recent elections to the Fellowship of the Linnean Society, we are pleased to note the names of Mr. W. H. Heathcote, the well-known conchologist of Preston, and of Rev. Alfred Thornley, M.A., of South Leverton, and Professor J. W. Carr, M.A., of the University College, Nottingham, from whom we hope to hear much concerning the natural history of the county in which they reside. The present numbers of the entomological journals contain an appeal for assistance in completing a list of Notts Coleoptera, an appeal to which we hope all who can will promptly respond.



The 'Ibis' for April of last year (1894) contained an account of a birds' nesting excursion to the north of Norway in 1893, made by Mr. Henry J. Pearson, M.B.O.U., of Bramcote, near Nottingham, in conjunction with Mr. Edward Bidwell. The paper is a joint one, and gives an interesting account of the trip and a list of the birds seen. They were accompanied by Mr. C. Pearson, M.B.O.U., also a Nottinghamshire naturalist. At the meeting of the British Ornithologists' Club, on the 8th March 1894, Mr. Pearson exhibited some of the birds taken on the trip.



Eleven numbers of the Malton Field Naturalists' Society's little monthly, 'Naturalist Notes' are before us, and contains many interesting and useful natural history items. We notice for example that the Society has acquired the herbarium formed by the late Mr. Walter W. Reeves, and notes on various rare plants found in the neighbourhood of Malton, meteorological tables, interesting antiquarian observations, proceedings of the Society, etc. We regret to note that our Malton friends should carry their modesty so far as to allow such interesting and valuable items as are published in their magazine to appear without signatures. The number of anonymous articles is to a bibliographer alarming, and we would suggest that in future no article or even note should be allowed to appear unsigned, and that in the index to the volume a full indication of authorship of all the articles already published should be given, to permit of the observations made having their full value. The Society, its valuable museum, and its magazine (the price of which is by the way a penny each number), have our best and sincerest wishes for their welfare.



All naturalists will hear with deep regret of the decease of Mr. Alexander Goodman More, which took place at Dublin on the 22nd of March last, at the comparatively early age of 64. Connected with our Northern Counties by his relationship on the maternal side with Sir George Goodman, the first Mayor of Leeds under the Act of 1835, his life's work lay elsewhere, first in the Isle of Wight, and afterwards for more than 30 years in the sister kingdom of Ireland, upon the natural history of which he was one of the leading authorities. He was the editor of the natural history in Venables' Guide to the Isle of Wight, joint-author of Moor and More's 'Cybele Hibernica,' and for a score of years assistant and curator of the natural history department of the Dublin Museum of Science and Art, a post now held by another naturalist connected with Yorkshire, Dr. Robert F. Scharff. The contributions to natural history which we owe to the labours of Mr. More are too numerous to specify here, and we can only voice a feeling of sorrow at the loss of so able and estimable a naturalist—emphatically a naturalist of the true stamp.

Naturalist,

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MARINE ALGÆ, 1888 to 1892.

THE present instalment has been compiled and edited by
WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the Bibliography of both Marine and Freshwater Algæ were published with the Cryptogamia in general, as follows :

For 1884—in 'Naturalist,' 1885, Oct., pp. 337-340.

„ 1885— „ 1886, June, „ 180-181.

„ 1886-7— „ 1888, Dec., „ 361-369.

ANON. [not signed]. Isle of Man.

Liverpool Marine Biological Committee [*Codium tormentosum* found in Fleshwick pools, Isle of Man, at Easter]. Research, May 1889, p. 203.

ANON. [not signed]. Lanc. S.

Rambles taken during the year 1889. . . . Southport [July 13th, *Fucus vesiculosus* and *F. nodosus* noted]. 10th Ann. Rep. Manch. Micr. Soc. for 1889, publ. 1890, pp. 114-116.

EDWARD A. L. BATTERS. Cheviotland.

A Description of three new Marine Algæ [*Ectocarpus holmesii*, *Phyllitis filiformis*, and *Ralfsia spongiocarpa*, all from Berwick-on-Tweed, described and figured; mention also made of *Ulothrix flacca* and *Calothrix scopulorum*]. Journ. Linn. Soc., Bot., No. 164, publ. Dec. 8th, 1888, pp. 450-453, and pl. 18.

EDWARD A. L. BATTERS. Cheviotland.

A List of the Marine Algæ of Berwick-on-Tweed [enumerating, with synonymy and extensive annotations, 119 genera and 271 species as found on the coasts both north and south of Berwick; list followed by various tables of additions to the British list, an artificial key to the genera, a bibliography, an explanation of the plates, and an index]. Proc. Berw. Nat. Club for 1888, pub. 1889, vol. 12, pp. 221-392, and plates 7-11; also see remarks by Sir W. Crossman in Proc. Berw. Nat. Club for 1890, publ. 1891, vol. 13, pp. 2 and 20; and Journ. Bot., Dec. 1890, pp. 381-2; reviewed by E.D.W. in Notarisia, No. 24, 30th April 1891, vi. 1238; and in Nuova Notarisia, 5th April 1892, p. 70.

E. A. BATTERS. Cheviotland.

Microchæte æruginea sp. n. [described from specimens affixed to *Rhodochorton rothii* Näg., at Berwick-on-Tweed]. J. of Bot., March 1892, p. 86; abstract in Annals of Scott. Nat. Hist., Ap. 1892, p. 147.

E. A. BATTERS. Chesh., Cheviotland.

New or Critical British Algæ [noting *Microchæte æruginea* Batt., growing on *Rhodochorton rothii* and *R. floridulum* at Berwick, *Ulvella lens* Cr. at Heswall and North Kirby, Cheshire, *Monostroma fuscum* Wittr. at Scarborough (Masse), and *Ectocarpus minimus* Näg. at Berwick]. Grevillea, Sep. 1892, pp. 13-23.

E. A. L. BATTERS. Cheviotland.

New or Critical British Algæ [described; including *Ectocarpus brevis* Sauv. on *Ascophyllum nodosum* at Berwick-on-Tweed]. Grevillea, Dec. 1892, p. 50.

Miss BROWETT. Yorkshire.

[*Himanthalia lorea* from the Brig, Filey]. Midl. Nat., Oct. 1885, p. 298.

June 1895.

GIO. BATT. DE TONI E DAVID LEVI-MORENOS.

Cheviotland.

Algæ Novæ [incl. *Ectocarpus holmesii* Batters, *Phyllitis filiformis* Batters, and *Ralfsia spongiocarpa* Batters, all Berwick-on-Tweed]. Notarisia, Anno 4, N. 14, Aprile 1889, pp. 735 and 737.

HILDERIC FRIEND.

Cumberland.

Solway Dunes [at Silloth] in April [*Fucus serratus*, *F. vesiculosus*, *Halidrys*, *Laminaria*, *Corda*, and *Ulva latissima* mentioned]. Sci. Goss., June 1889, pp. 125-126.

R. J. HARVEY GIBSON.

Chesh., Lanc. S., Isle of Man.

Report on the Marine Algæ of the L[iverpool]. M. B. C. District [with introductory remarks, followed by list of 230 species, with localities; of these 70 are for Cheshire and 3 for Lancashire localities, and 49 for the Isle of Man, and a great number are either noted as 'general' or not localised; the recording not satisfactorily done by writer's predecessors]. Proc. Liverp. Biol. Soc., Vol. 3, 1888-89, publ. 1889, pp. 128-134; reprinted with new pagination, 1-27, Second Report on Fauna of Liverpool Bay, 1889.

R. J. HARVEY GIBSON.

Isle of Man, Chesh., Lanc. W. and S.

A Revised List of the Marine Algæ of the L[iverpool]. M. B. C. District [enumerating 256 species and varieties, of which however 35 are extra-limital to our bibliography, occurring only in the Welsh portion of the L. M. B. C. area; leaving 221 for Lancashire, Cheshire, and Isle of Man, of which 180 are Manx, 116 found at Hilbre Island, and 69 in the Mersey and Dee Estuaries; fully explanatory introduction and notes on authorities, etc., precede the list, which is followed by Appendices, one of 21 species reported by previous collectors which require confirmation, a second giving the literature of the subject, a third tabulating the distribution of the species through the district, and a fourth giving an artificial key to the genera of marine algæ found in the district]. Trans. Liverp. Biol. Soc., vol. 5, 1890-91, publ. 1891, pp. 83-143, and plates 2-5; reprinted in 3rd vol. of Reports on the Fauna of Liverpool Bay, 1892, with pagination altered to 65-125; noted in J. of Bot., Aug. 1891, p. 253; and in Nuova Notarisia, 5 Aprile 1892, Serie III., p. 68.

W. A. HERDMAN.

Isle of Man.

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W. A. HERDMAN.

Isle of Man.

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W. A. HERDMAN.

Isle of Man.

The Second Annual Report of the Liverpool Marine Biological Station on Puffin Island [with notes of *Melobesia calcarea* off the Isle of Man]. Report, 1889, separate pamphlet of 26 pages in cover, with map; also included in Second Report on Fauna of Liverpool Bay, 1889, and paged slightly differently, 24 pp.; and Proc. Liverp. Biol. Soc., Vol. 3, 1888-9, publ. 1889, p. 36.

W. A. HERDMAN.

Chesh., Lanc. S. and W., Isle of Man.

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W. A. HERDMAN.

Isle of Man.

Brief Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [enumerating *Corallina officinalis*]. Back Trans. I. of Man N. H. Soc., i., 54-56; publ. with Yn Lioar Manninagh, July 1889.

W. A. HERDMAN.

Isle of Man.

Third Annual Report of the Liverpool Marine Biological Station on Puffin Island [with records of *Codium tormentosum* in Fleshwick Bay]. Trans. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, p. 59; reprinted both separately and in Third Report on Fauna of Liverpool Bay, 1892, with altered pagination, pp. 26 and 24 respectively.

H. H. HIGGINS.

Lanc. S., Cheshire.

Pioneers in Local Biology [giving Bibliographical Notes of work done in investigating the Fauna of the Liverpool district; with special mention of *Delesseria sanguinea* near the Alt]. First Report on Fauna of Liverpool Bay, 1886, pp. 16-31.

E. M. HOLMES.

Cheviotland.

[New British Algæ, *Rhododermis elegans* Cr. var. *polystromatica* at Bognor and at Berwick-on-Tweed by E. L. Batters; the var. is new to science]. Proc. Linn. Soc., Feb. 5th, 1889 [Bognor only mentioned in the printed 'Proceedings']; Zool., March 1889, p. 112.

J. M. JEFFCOTT.

Isle of Man.

Address of the Retiring President [of Isle of Man N.H.S., 27th March, 1890; on Manx words: mooir lane=a branching species of seaweed; slat-varrey=Tangle; and suggane=a kind of seaweed]. Yn Lioar Manninagh, No. 5, Jan.-April 1890, p. 156.

GEORGE JOHNSTON.

Cheviotland.

Selections from the Correspondence of Dr George Johnston [1892; noting at p. 508 *Cladostephus verticillatus* and *Gelidium corneum* both at Holy Island].

P. M. C. KERMODE.

Isle of Man.

Address by the Retiring President . . . delivered . . . March 11th, 1886 [gives titles of books and papers dealing with the Algæ of the Isle of Man]. Back Transactions of the Isle of Man N.H.S., i., 70; publ. with Yn Lioar Manninagh, Oct. 1889.

F. C. KING.

Isle of Man.

Isle of Man Excursion [the Algæ obtained were *Desmarestia ligulata*, *Gelidium corneum*, *Cladophora luteovirens*, *C. flexuosa*, *Cladostephus spongiosus*, *C. verticillatus*, *Ectocarpus siliculosus*, *Ptilota elegans*, *Polysiphonia brodiaei*, *Delesseria sinuosa*, and *Dasya coccinea*]. Wesl. Nat., Oct. 1889, p. 230.

ALFRED LEICESTER.

'Liverpool Bay.'

Preliminary List of the Algæ of the L[iverpool]. M. B. C. District [a bare enumeration of 28 species]. First Rep. Fauna of Liverp. Bay, 1886, pp. 312-314.

O. NORDSTEDT.

Furness.

Some Remarks on British Submarine Vaucheriae [noting *Vaucheria sphaerospora* formæ *monoica* and *dioica* at Greenod, Lancs., sparingly on sand], Scott. Nat., Oct. 1886, pp. 382-384 and plate; reprint paged 1-4.

JOHN RATTRAY.

York S.E.

A Revision of the Genus Aulacodiscus Ehrb. [including record at p. 374 of *A. argus* Schm., ascidia, Hull (Greville! Gregory); ascidia off Flamborough Head (Norman!), stomach of oysters, Humber (Dickie!)]. Journ. of R. Micr. Soc., June 1888, pp. 337-382 and plates 5, 6, 7.

JOHN RATTRAY.

York S.E.

A Revision of the Genus Auliscus Ehrb. and of some Allied Genera [including record at p. 917 of *Roperia tessellata* Grun., from ascidians, Hull (Gregory! Greville!)]. Journ. of R. Micr. Soc., Dec. 1888, pp. 861-920, and plates 12-16.

H. STOLTERFOTH.

Cheshire, Isle of Man, Lanc. S., York S.E.

Report on the Marine Diatomaceæ of the L[iverpool]. M.B.C. District [giving bibliography of various published lists for Liverpool, Hull, and Chester; and localities, etc. for 184 species altogether, of which 2 are from the Isle of Man, 84 from Cheshire and the Dee, and 97 are outside our

limits, i.e., Welsh]. Proc. Liverp. Biol. Soc., Vol. 3, 1888-89, publ. 1889, pp. 117-127; and reprinted with pagination altered to 1-11, in Second Report on Fauna of Liverp. Bay, 1889.

GEO. SWAINSON.

Isle of Man.

On the Dalby Rocks [Isle of Man; list of captures in Aug. 1888; *Halidrys siliquosa*, *Himanthalia lorea*, *Fucus vesiculosus*, *F. nodosus*, *F. serratus*, *F. canaliculatus*, *Desmarestia aculeata*, *D. viridis*, *Laminaria digitata*, *L. saccharina*, *Dictyota dichotoma*, *Sphacelaria plumosa*, *S. cirrhosa*, *Alaria esculenta*, *Chorda filum*, *Litosiphon pusillus*, *Ectocarpus siliculosus*, *Elachistea fucicola*, *Cutleria multifida*, *Dictyosiphon faniculaceus*, *Haliseris polypodioides*, *Odonthalia dentata*, *Polysiphonia formosa*, *P. atro-purpurea*, *P. elongata*, *P. fastigiata*, *Corallina officinalis*, *Jania rubens*, *Delesseria sanguinea*, *D. alata*, *D. sinuosa*, *Nitophyllum punctatum*, *Plocamium coccineum*, *Dasya coccinea*, *Rhodomela subfusca*, *Laurencia pinnatifida*, *Rhodymenia palmata*, *R. laciniata*, *R. ciliata*, *Sphærococcus coronopifolius*, *Gracilaria confervoides*, *Hypnea purpurascens*, *Grateloupia filicina*, *Chondrus crispus*, *Furcellaria lumbricalis*, *Polyides rotundus*, *Ceramium rubrum*, *Halymenia ligulata*, *Ptilota plumosa*, *P. rotundus*, *Callithamnion borrieri*, *Griffithsia corallina*, *Seirospora griffithsiana*, *Gigartina acicularis*, *G. mammosa*, *Melobesia polymorpha*, *Ulva latissima*, *U. linea*, *Codium tomentosum*, *Enteromorpha compressa*, and *Conferva litorea* enumerated]. Wesl. Nat., Nov. 1888, ii. 268.

G. SWAINSON.

Isle of Man.

Results of Dredging Excursion to Dalby, Aug., 1888 [enumerated; of algæ, 60 species, of *Halidrys*, *Himanthalia*, *Fucus*, *Desmarestia*, *Laminaria*, *Dictyota*, *Sphacelaria*, *Alaria*, *Chorda*, *Litosiphon*, *Ectocarpus*, *Elachistea*, *Cutleria*, *Dictyosiphon*, *Haliseris*, *Odonthalia*, *Polysiphonia*, *Corallina*, *Jania*, *Delesseria*, *Nitophyllum*, *Plocamium*, *Dasya*, *Rhodomela*, *Laurencia*, *Rhodymenia*, *Sphærococcus*, *Gracillaria*, *Hypnea*, *Grateloupia*, *Chondrus*, *Furcellaria*, *Polyides*, *Ceramium*, *Halymenia*, *Ptilota*, *Callithamnion*, *Griffithsia*, *Seirospora*, *Gigartina*, *Melobesia*, *Ulva*, *Codium*, and *Enteromorpha*; and one Confervid—*Conferva litorea*]. Vannin Lioar, Jan. 1889, p. 115.

T. TALBOT.

Isle of Man, York N.E. and S.E.

Marine Algæ. Especially of Douglas Bay [being the introduction to a list of 140 species (the list itself lost and therefore not printed), noticing *Wrangelia multifida*, *Himanthalia lorea*, *Sphærococcus coronopifolius*; and a note of *Odonthalia dentata* being found at Filey as well as in the Isle of Man]. Trans. Isle of Man N.H.S., vol. i., 1879-84, publ. 1888, pp. 51-53.

T. TALBOT.

Isle of Man, York N.E. and S.E.

Marine Algæ, especially of Douglas Bay [Isle of Man; 140 species enumerated, being 78 Rhodosperms, 42 Melanosperms, and 20 Chlorosperms; prefaced by remarks upon the occurrence of *Wrangelia multifida*, *Himanthalia lorea*, *Odonthalia dentata*, and *Sphærococcus coronopifolius*, and of *Od. dentata* at Filey, Yorkshire]. Back Trans. Isle of Man N.H.S., pp. 82-84; publ. with Yn Lioar Manninagh, No. 5, Jan.-Apl. 1890.

GEORGE ROBERT VINE.

Linc. N.

Notes on Polyzoa found at Cleethorpes in 1875, 1879, and 1882 [with incidental mention of *Laminaria digitata* and *Plocamium coccineum* as found there also]. Nat., Jan. 1892, pp. 9-11.

GEORGE WILKS.

Isle of Man.

[*Fucus serratus* on the rocks in Douglas Bay]. Ann. Rep. Manch. Microsc. Soc. for 1885, pub. 1886, p. 5.

W. H. YOUNDALE.

Cumberland.

Silloth in August [1891; the seaweeds found were *Fucus canaliculatus*, *F. vesiculosus*, *F. nodosus*, *Polysiphonia fastigiata*, *Melobesia polymorpha*, *Griffithsia corallina*, *Ulva latissima*, and *Enteromorpha compressa*, and the diatoms *Pleurosigma æstuarii*, *Navicula crassinervis*, *Surirella gemma*, *Nitzschia sigma*, and *N. valida*, all on or near the pier]. Sci. Goss., Jan. 1892, p. 15.

NOTES ON A FEW OF THE LESSER KNOWN FISH OBSERVED IN THE SCARBOROUGH DISTRICT DURING THE LAST TWO YEARS.

OXLEY GRABHAM, M.A., M.B.O.U.

Brosmius vulgaris. Torsk or Tusk. A specimen of this fish, which is very rarely brought into Scarborough, was obtained in the Fish Market in the summer of 1894.

Cyclopterus lumpus. These curious-looking fish are pretty common in the pools on the rocks during the early summer. They are known as 'lumpsuckers,' and in their breeding dress are very brilliantly coloured, red predominating in the male and blue in the female.

Liparis vulgaris. Sea Snail. Quantities of these pretty little fish are caught in the crab and lobster pots.

Trachinus draco. Greater Weever or Sting-fish. Mr. W. J. Clarke showed me one of these, which had been caught off the south pier. They are much rarer than their congener *Trachinus vipera*, the Lesser Weever, or Sting-fish, as it is generally called.

Gasterosteus spinachia. Fifteen-spined Stickleback. Often caught off the piers.

Squalus squatina. Monk or Angel Fish. A large specimen was caught by one of the trawlers, and preserved by Mr. W. J. Clarke.

Gadus luscus. Bib or Whiting Pout. Distributed along the coast, but not very common.

Gadus morrhua. Cod. These, of course, are common enough, and some very good fish, ranging from 20 lbs. to 30 lbs., are taken with rod and line from the shore. My reason for mentioning them is that on the stomach of a large one being opened an entire Guillemot was taken therefrom. It was brought to Mr. W. J. Clarke, and that gentleman informs me it was in such good condition that, had he not been very busy at the time, he would have preserved it. An angler fishing from the south pier had his bait taken by a Guillemot, which, after some exciting play, was satisfactorily landed.

Rhombus punctatus. Muller's Topknot. Very scarce in the district. One specimen was brought to Mr. W. J. Clarke, and preserved by him.

Megastoma veliolans. Sail Fluke or Whiff. I examined this fish in a shop, in company with Mr. John Cordeaux, by whom it was identified. If all that is said about it be true, it is a most interesting species.

Labrus maculatus. Ballan Wrasse. Known in the district as Rock Perch. These handsome fish are fairly common; the largest I have seen caught weighed close upon 5 lbs.

Belone vulgaris. Gar-Fish. Frequently taken in the trawl-nets.

Orthogoriscus mola. Sunfish. I have only seen one specimen taken here, but it is said to occur at intervals.

Petromyzon marinus. A nice specimen weighing over 2 lbs., of this Sea Lamprey, was brought to me last summer.

Callionymus lyra. Yellow Skullpin or Gemmeous Dragonet. Mr. W. J. Clarke showed me a specimen of this prettily marked fish, taken off the shore.

Syngnathus æquoreus. Ocean Pipe Fish. Fairly distributed along the coast.

Centronotus gunellus. Nine Eyes. Butter Gunnell. Generally distributed.

Squalus catulus. Lesser-spotted Dog Fish. Very scarce.

Acanthias vulgaris. Picked or Spinous Dog Fish. Very scarce. I have only seen one specimen here of this, and the preceding fish. A few years ago Dog Fish were so plentiful as to be a great nuisance to fishermen; now they are hardly seen.

Regalecus banksii. Banks' Oar-fish. Last summer, when walking one day through the village of Flamborough, I was attracted by a small tent, having a notice outside to the effect, that on paying the sum of one penny the public would be permitted to view some monster of the deep, as 'mythical as the Sphinx and as rare as the Dodo.' As I never miss such opportunities of acquiring knowledge, I entered, and there to my surprise saw a very good specimen of *Regalecus banksii*, Banks' Oar-fish. Speaking from memory, it was fourteen or fifteen feet in length and very fairly set up, though the case in which it was, contained a tortoise or two and several other incongruities, but if done up and recased it would make a very presentable specimen, and it seems a thousand pities that it is not acquired by some Yorkshire Museum instead of being left to go mouldy and decay in a barn for the greater part of the year. It was, I believe, killed on the rocks by some

of the Flamborough fishermen a few years ago, was cut into three pieces and taken to Mr. Thompson, who then lived at Scarborough, and who preserved it.

In concluding these rough notes on marine fish, I should just like to mention the following specimens of their freshwater brethren which have all been taken from the river Derwent, during the last two years in the neighbourhood of Scarborough. They are interesting not only from a piscatorial but also from an ichthyological point of view as showing that some of our Yorkshire rivers are not yet depleted of specimen fish, though I am afraid many of them bid fair to become so, at no distant date. The following have, as they justly deserve, been preserved for their captors by the well-known firm of specialists in fish mounting—Messrs. Cooper & Sons.

Esox lucius. Pike. Caught by Rev. J. Jackson. Weight 19 lbs.

Leuciscus cephalus. Chub. Caught by Mr. Bearup. Weight 5 lbs. 2 oz.

Leuciscus rutilus. Roach. Caught by Mr. O. Grabham. Weight 1 lb. 15½ oz.

Leuciscus rutilus. Roach. Caught by Mr. W. J. Clarke. Weight 1 lb. 15 oz.

Leuciscus vulgaris. Dace. Caught by Mr. O. Grabham. Weight 12 oz.

Thymallus vulgaris. Grayling. Caught by Mr. J. Gardiner. Weight 2 lbs. 5 oz.

March 1895.

NOTE—MOLLUSCA.

Testacella scutulum at Scarborough.—At the annual meeting of the Conchological Society held at Leeds on the 18th May, 1895, Mr. F. W. Fierke, of Hull, exhibited two specimens of *Testacella scutulum* taken by Mr. R. H. Barker in August last at Scarborough.

NOTE—ORNITHOLOGY.

Occurrence of the Water-Pipit in North Lincolnshire: An Addition to the Avi-fauna of the Humber District.—Mr. Philip Loten, of Easington, recently had a Pipit in the flesh, sent by Mr. G. H. Caton Haigh, of Grainsby Hall, which he had procured on the Lincolnshire Coast on April 5th. Mr. H. B. Hewetson, of Leeds, who was staying at Easington, saw and examined the bird, and wrote me saying that he was certain it was the Water-Pipit (*Anthus spipoletta*). A week later I had myself an opportunity of examining it at Mr. Loten's house. He told me it was an adult female in moult, and I was quite satisfied that Mr. Hewetson was correct in his diagnosis of the species. Subsequently the bird was sent by Mr. Haigh to Professor Newton and Mr. Dresser, who fully confirmed the correctness of its identity with *A. spipoletta*. Mr. Saunders, in the 'Manual of British Birds,' has recorded four occurrences between 1864 and 1877 in Sussex, the only county hitherto in which it has been recognised. Supposed instances of its appearance have at various times been reported in other parts of the kingdom, but these, on examination, have invariably proved to be the Scandinavian Rock-Pipit.—JOHN CORDEAUX, Great Cotes House, R.S.O., Lincoln, 15th May, 1895.

June 1895.

NOTES AND NEWS.

The sixteenth part of Dr. R. Braithwaite's British Moss-Flora has just been published (April). It completes the second volume of this important work, and includes supplement, addenda, title-page, index, etc. We can only repeat our remarks on this part, as given in our notice of part xv. (Nat., No. 227, p. 173), which fully apply to the present issue. This part includes Families xvii. *Meesiaceæ* and xviii. *Mniaceæ*: and as there are again several alterations in the nomenclature, from those in Schimper's Synopsis eds. 1 and 2, Wilson's Bryologia Britannica, and Hobkirk's Synopsis of British Mosses, ed. 1, 1873, and ed. 2, 1884, we append a list of the species described, with the synonyms of those treated in the above three works:—

XVII. MEESIACEÆ.

- Meesia trichodes* (L.). Spruce, Ann. and Mag. Nat. Hist., 1849 = *M. uliginosa* Hedw., Schimper, Wilson, Hobkirk.
Paludella squarrosa (L.) Brid.

MNIACEÆ.

- Gymnocybe palustris* (L.) Fries (1825) = *Aulacomnium palustre* Schimper, Wilson, Hobkirk.
Gymnocybe turgida (Wahlen.) Lindb. = *A. turgidum* Schimper, Hobkirk.
Orthopyxis androgyna (L.) P. Beauv. = *Aulacomnium androgynum* Schimper, Wilson, Hobkirk.
Timmia austriaca Hedw.
Timmia norvegica Zett. Schimper, Hobkirk.
Mnium spinosum (Voit) Schwaeg. Schimper, Hobkirk.
Mnium marginatum (Dicks.) P. Beauv. (1805) = *M. serratum* Schimper, Wilson, Hobkirk.
Mnium riparium Mitt. (1864). Hobkirk, Schimper, ed. ii.
Mnium orthorrhynchum Br. Sch. (1838).
Mnium hornum L.
Mnium sylvaticum Lindb. (1867) = *M. cuspidatum* Schimper, Wilson, Hobkirk.
Mnium seligeri Juratz. (1893) = *M. affine* var. *elatum* Schimper, ed. i.
Mnium cuspidatum (L.) Neck. (1770) = *M. affine* Schimper, Wilson, Hobkirk.
Mnium undulatum L.
Mnium rostratum Schrad.
Mnium stellare Reich.
Mnium cinclidioides (Blytt.) Hueb.
Mnium pseudopunctatum Br. Sch. (1843) = *M. subglobosum* Wilson, Schimper ed. ii., Hobkirk.
Mnium punctatum L.
Cinclidium stygium Swartz.

SUPPLEMENT.

- Catharinea hausknectii* (Jur. Milde) Brotherus. Additional species, following *C. undulata*, vol. 1, p. 39. Near Broxbourne, Herts (Vaisey, 1886).
Ditrichum zonatum (Brid.) Limpr. The 2nd, 5th, and 6th synonyms in Br. Moss F. i., p. 100, belong to this species.
Dicranum undulatum Ehr. Near Perth.
Mollia brevifolia (Sendt.) Braith. Has probably been mistaken for *M. crispula*.
Barbula icmadophila Schimp. Allied to *B. acuta*.
Cinclidotus riparius (Host) Arnott. For a long time united with *Barbula mucronata*, now recognised as from county Clare and Ludlow.
Bryum alpinum var. γ *viride* Husnot.
Bryum capillare var. η *elegans* Nees.

ADDENDA.

Of new localities, etc., of rare species, Plates 79 to 84 fully maintain their high character.—C. P. H.

The Museum at Newcastle-on-Tyne has recently received an addition in the form of the lion which was killed by its cage-companion of Sanger's circus while exhibiting in that city on the 14th of May.

MOOR BEETLES.

REV. W. C. HEY, M.A., M.C.S.,

Vice-President of the Yorkshire Philosophical Society, West Ayton, near Scarborough.

IMMEDIATELY beyond the sharp backbone called Langdale Rigg, and about ten miles west of Scarborough, lie two very desolate-looking stretches of moorland, described in the Ordnance Map as Maw Rigg and Ebberston High Moor. At their southern extremity, where they gradually narrow off, flows a picturesque little stream called by the gloomy name of the 'Black Beck.' I have spent two brilliant afternoons this month (May) in searching these moors and this beck for Coleoptera. On the first occasion I was accompanied and assisted in collecting by Mr. J. Raine, of West Ayton. After putting up our pony trap at the little inn at Langdale End (which, I may remark by the way, is now a very comfortable little house, and most handy for those who love a day in wild scenery), we walked down to a farmhouse called Birch Hall, picking up *Liophlaeus nubilus*, *Harpalus latus*, and *Aphodius luridus* (the black variety) on the way. We soon reached a small mossy bog which yielded *Hydroporus morio* and *H. gyllenhalii*. Two other species of the same genus—*H. nigrita* and *H. memnonius*—occurred in a neighbouring pool. As we ascended the slope of the moor, we found the heather, dead as it still was, absolutely swarming with a beautiful green *Haltica*, which seems to agree best with Canon Fowler's description of *H. ampelophaga*, but it is a genus which has never been successfully elucidated. An extraordinary number of Emperor Moths (*Saturnia carpini*) kept flying past us in the dazzling sunshine, mostly in the teeth of a sharp south-east wind. My friend captured some very richly coloured specimens. Of course the air was full of Tiger Beetles (*Cicindela campestris*), shining like polished malachite. One specimen I took belonged to the dark variety. About two miles further, and just beyond a large collection of tumuli, we came across a tiny gully which, owing to its steep sides, had proved a trap to many insects, the most conspicuous being *Carabus nitens*. Under stones in the same gully, I took a pair of the Alpine *Pterostichus vitreus*. In the living insects, the wing cases wear a decided brassy tint, which readily distinguishes the species. Here I also met with a quantity of *Bradycellus cognatus*, *Xantholinus linearis*, and a pair of *Cytilus varius*. This was the limit of our excursion, and here we rested a while to watch the Curlews (*Numenius arquata*) which were shrieking about us in great numbers. Now and again a Grouse (*Lagopus scoticus*) started up, and once or twice the faint pipe of the Golden Plover (*Charadrius*

pluvialis) came to us like a voice from spirit land—and, indeed, one seemed in that wild, lonely place to be walking in an age long past away—for no trace of man or his works could anywhere be seen less ancient than the group of barrows that stood about us.

After a time, we scrambled down to a narrow beck that flowed to the west of the moor we had climbed, a perfect little mountain stream that here prattled noisily among stones, now loitered by a sandy bank, anon slept in a deep dark pool, and then, as if ashamed of its delay, plunged headlong over a broad slab of rock. We presently started a Heron (*Ardea cinerea*) that rose nobly in the narrow ravine, and then after a few not very remunerative hauls with the net, made the best of our way back to the inn.

On my second visit, two days later, I first pursued the Crosscliff Road and then descended to the Black Beck. Here, at a ford, I fished among the gravel and stones and found numbers of *Hydroporus rivalis* and *H. septentrionalis*, as well as three specimens of a great prize, *Hydroporus ferrugineus*. I am not aware that this species has been previously recorded for Yorkshire. It is a most conspicuous insect, walking very rapidly on its long legs. The great red spots on the shoulders produce a very fine effect while the insect is alive. The same stream yielded *Elmis volkmari*, *E. æneus*, and *E. parallelipedus*, and *Henicocerus exsculptus*. Crossing the beck, I found a large marsh which yielded nothing but *Limnebius truncatellus* and *Hydroporus melanocephalus*. As I ascended the moor, I turned over many of the stones which strew its surface in large numbers. Under one of them I found a brilliant specimen of *Carabus arvensis*, and under another, *Pterostichus lepidus*, only the second example, I believe, ever taken in Yorkshire. It is of a glittering copper colour. As I reached the higher part of the moor I found little but *Bradycellus similis*, *Olisthopus rotundatus*, and *Elater balteatus*. When I was about half way back, I turned over a stone that was lying on the heather and found under it about half a dozen of the local *Calathus flavipes*, a beetle that runs like 'greased lightning.' With it, was a still more interesting insect, *Cymindis vaporariorum*. The only Yorkshire localities hitherto recorded for it are Midgley Moor and the Tees Banks. I turned over several other stones in the same spot, and secured half a dozen specimens. They were entirely confined to one dry sandy patch of moor, and only occurred under stones which lay somewhat loosely on dead heather.

Hunger and thirst, two very common products of the Yorkshire moors, now drove me back to Langdale, and I should almost have grudged the time required to bottle a *Byrrhus* that met me on the sandy road had it not proved to be the rare *B. dorsalis*.

NATURAL HISTORY NOTES FROM THE BRADFORD CHURCHWARDENS' ACCOUNTS.

HERBERT E. WROOT,
Bradford.

THE churchwardens' accounts for the Township and Parish of Bradford contain a considerable number of entries of payments of rewards under the Acts of Parliament of the years 1566, 1572, and 1597, for the killing of animals considered to be vermin. The first such record is dated in the year following that in which the accounts open—namely, 1668. Although the practice of paying such rewards continued, in many parts of the country, down, it is said, to the Poor Law Reform of 1834, the entries of this character in the Bradford accounts end abruptly in 1748. They afford interesting evidence of the existence in and near Bradford of (1) *Erinaceus europæus* (hedgehog or urchin); (2) *Felis catus* (wild cat); (3) *Canis vulpes* (fox); (4) *Lutra lutra* (otter); (5) *Meles meles* (badger or gray); (6) *Mustela putorius* (polecat or foumart). Of these the most plentiful were the hedgehog, the deaths of no less than 180 being recorded. It is difficult to understand why such ceaseless warfare should have been waged upon these harmless creatures, but probably superstition was against them, and was all-powerful. They are even now supposed to suck the milk from the udders of cows as they lie on the ground, and the idea is not eradicated from the agricultural mind, even by its being pointed out that the operation would be a physical impossibility for a creature with so small a mouth as the hedgehog. The struggles of the illiterate churchwardens with the spelling of the words 'urchin' and 'hedgehog' are very amusing, and the diversity of ways which their ingenuity has devised, rival the well-known list of different modes of spelling Shakespeare's name. The existence of the wild cat in the district is especially interesting, the animal being long ago extinct in England. A few still occur in remote districts of the Scottish Highlands, but the time cannot be far distant when they will have become as completely exterminated as the wolf. Four specimens are referred to in our records, two caught in 1676, one in 1678, and the last in 1680. The badger or 'gray,' from the scarcity of mention of its name, seems to have been either very scarce or rarely seen. Only one specimen is referred to and that was killed in 1676 at Shipley. Although polecats are several times noted, it is somewhat curious that we have none of its congeners, the marten, the weasel, and the stoat. Otters seem to have been not uncommon, five having been killed, the last mentioned

occurring in 1731. Presumably the habitat of those killed within the township of Bradford, must have been Bradford Beck, yet it requires a severe effort of the imagination to conceive the vile sewer which now represents that stream, as having been once a fit home for a creature of such delicate tastes as the otter. It is noticeable that no payment seems to have been made for any of the birds whose destruction is prescribed by the Acts referred to, such as hawks, kites, the buzzard, magpie, jay, raven, or kingfisher, or for any of the smaller vermin, rats, mice, or moles. The rewards paid, 1s. each for foxes and grays, and 2d. each for hedgehogs, otters, wild cats, and polecats were in strict conformance with the scale prescribed by law.

The following is a complete and literal transcript of the entries:—

1668	P ^d . Mr. Calveley Man for a Fox head	00 · 01 · 0
do.	Rec[eive]d of Maningim they had A fox-head	02 · 03 · 00
	[Otherwise the share of the church 'lay' or rate for the Manningham township would be £2 : 4 : 0].	
1689 Sept. 6—	Paid to Robert Kent for ye Killing of an Vrchan	00 · 00 · 02
1670 Aprill 22—	Paid to Thomas Roe for Catshing two heg hoges	00 · 00 · 4
1670-71	Paid Robart Kent for two heg hoges catshing	00 · 00 · 4
do.	P ^d . William Feeld for Catshing an ottar	00 · 00 · 2
1671-2	It : to John Swift for an oter ...	00 · 00 · 02
1673-4	Given to Robert Taylor for a fox killing	00 · 01 · 00
1675-6	P ^d . Tho. Thornton for 2 Hedghoggs	00 · 00 · 04
do.	P ^d to John Swift & Isaack for 2 Hedghogs	00 · 00 · 04
do.	P ^d . Horton Churchwardens for 2 fox heads	00 · 02 · 00
do.	P ^d . Mathew Gill & Timothy Wood for 2 foxheads	00 · 02 · 00
1676-7	Paid Matthew Gill for a ffoxhead ...	00 · 01 · 00
do.	Allowed the churchwardens of Shipley for six hedghogs, a Gray & two Wilcatts	00 · 02 · 04

1676-7	Allowed to Daniell Greenwood churchwarden of Heaton for two ffox heads... ..	00 · 02 · 00
1677-8	f [for] to William Rodes & Simon Bell 6 Heg Hogs	00 · 1 · 0
(do.)	f William Estwod 2 Heg Hogs ...	00 · 00 · 4
(do.)	f Richard Neller for a Dov Box and mending of fount... ..	00 · 13 · 10
(do.)	f John Swift for 2 oters 4 ^d & 3 Heg- hogs 6 ^d	00 · 0 · 10
(do.)	f Timothy Wod & Jos Ball 5 Heg Hogs	00 · 0 · 10
(do.)	f David Hallmond for 3 Heg Hogs & a fox Head	00 · 1 · 6
(do.)	f to Exell [Eccleshill] Churk Warden 2 fox Heads	00 · 2 · 0
(do.)	I. to church wardens of maningam for Heg Hogs & others	00 · 2 · 0
1678-9	Paid to John Wilbe & John Grengate & Jonas Tasker & John Barker & John Swift for 24 uerchanes ...	00 · 04 · 00
(do.)	Paid to John Wadington for 2 fox heades	00 · 02 · 00
(do.)	Aloud to little horton Churchwarden for 2 uerchanes	00 · 00 · 04
(do.)	Aloud to the Churchwarden of Shipley for 6 uerchanes & for a fox head & for a wild cat	00 · 02 · 02
(do.)	Aloud to the Churchwarden of Bowling for 3 uerchanes ...	00 · 00 · 06
(do.)	Aloud to the Churchwarden of Eccleshell for 2 fox heads & for 13 uerchanes	00 · 04 · 02
1679—Aug. 1.	To W ^m . Lister & his son for 2 hedghogs	00 · 00 · 04
Sept. 25	To W ^m . Lister jun : for a hedghog ...	00 · 00 · 02
1679 ⁷ / ₈ March 8.	To John Barker & Tim Wood for 6 hedghogs	00 · 01 · 00
March 26.	To Robt. Atkinson for a hedghog ...	00 · 00 · 02
1680 Aprill 9.	Allowed to Robt. Wright Ch : Ward : of Horton for 3 hedghogs ...	00 · 00 · 06

	To th' Church Wardens of Maning-				
	ham for 4 hedghogs and a fowmard		00	· 00	· 10
	To th' Ch : Wardn. of Allerton for a				
	fox head		00	· 01	· 00
	To th' Ch : Wards of Shipley for 2				
	hedghogs & wild catt		00	· 00	· 06
	To John Barker & Tim : Wood for				
	one hedghog more		00	· 00	· 02
Aprill 23.	To Nathanel Ogden for a hedghog ...		00	· 00	· 02
	To Timo : Wood for another ...		00	· 00	· 02
1679 June 6.	To W ^m . Hey for a hedghog		00	· 00	· 02
	To Thomas Cave for another ...		00	· 00	· 02
	To Nathan Howldworth for another		00	· 00	· 02
	To Richd. Eastwood for 2 hedghogs		00	· 00	· 04
June 10.	To John Atkinson for 3 hedghogs ...		00	· 00	· 06
	To Wm. Sowden for another ...		00	· 00	· 02
	Paid for a frowmart to John Wilson		00	· 00	· 02
	& to W ^m . Sowden for 2 hedghogs ...		00	· 00	· 04
1679 ⁹ / ₈₀ Janu : 1st.	ffor a fowmart To John Allen ...		00	· 00	· 02
1680 April 21	To Math : Stead for 2 hedghogs ...		00	· 00	· 04
	To Ch : Warden of Horton for 3				
	hedghogs and a foulmart ...		00	· 00	· 10
1680-1	P ^d . to John Barker for 2 Hedgehogs		00	· 00	· 4
	P ^d . to Tim ^o . Wood for 2 Hedghogs ...		00	· 00	· 4
	P ^d . to John Barker for 5 Hedghogs ...		00	· 00	· 10
	P ^d . to John Drake for 1 Hedghog ...		00	· 00	· 2
	P ^d . to Mr. Rawson for a fox head ...		00	· 01	· 0
	P ^d . to Churchwardens of Bolling for				
	hedghogs & 1 fumard		00	· 01	· 4
	P ^d . to Church : Warden of Eccleshill				
	for a Fox head		00	· 01	· 0
	P ^d . to Edward Bonas man for a				
	Hedghog		00	· 00	· 2
	P ^d . to John Smith for 1 fumard ...		00	· 00	· 2
	P ^d . to Timothy Wood for 2 Hedgehogs		00	· 00	· 4
	P ^d . to Isaac Swift for 1 Hedghog ...		00	· 00	· 2
	P ^d . to Isaac Swift for 2 Hedghogs ...		00	· 00	· 4
	P ^d . to Tim ^o . Wood for another ...		00	· 00	· 2
May : ye 13 th 81	ffor 3 hedge hog heads 6 ^d		00	· 00	· 6

Naturalist,

1707 May 7.	To cash p ^d David Heartley for Cutting Whigings on steeple side	0 · 1 · 6
1711 Sept. 13	P ^d . Tho: Waterhouse for Six hedge-hogs	00 · 1 · 00
1717	Gave Mr. Stansfield's man & Edw ^d . Hurst for 8 Hegde Hoggs ...	0 · 1 · 0
1724.	P ^d . W ^m . Prince for 30 Large Limes & planting [half share]	00 · 19 · 9
1730.	To Arsdens Boy for 2 Hedge hogs ...	0 · 0 · 2
June 25.	Peter Hutton for a ffoxes Head ...	0 · 1 · 0
July 1.	3 Hedge Hogs	0 · 0 · 6
1731 Aug. 2.	To David Wilby &c. p. killing an Otter	0 · 1 · 0
1748 June 28th.	Paid for four Hedge Hoggs to Jn ⁿ . Wood Ezek Killerby	1 · 4

NOTE—ORNITHOLOGY.

Yellow Wagtail and Green Woodpecker at Kirton-in-Lindsey.—On the 19th of February, when at Redbourne, about 11 a.m., I saw a Yellow Wagtail (*Motacilla raii*). Is not this a very early period to see this bird so far north? On the 21st February, a friend of mine brought for me to see a Green Woodpecker which he had found dead in their garden.—C. F. GEORGE, Kirton-in-Lindsey, March 3rd, 1895.

NOTE—MOLLUSCA.

Dendronotus arborescens at Flamborough.—While searching rock-pools to-day at the South Landing at Flamborough, I found an example of this interesting nudibranch, the second I have seen on the Yorkshire coast, the first having been at Filey last year. I also noticed *Eolis papillosa* and plenty of its ova. Doubtless *Dendronotus* is not uncommon on our coast, but from the paucity of workers actual records seem to be wanting. Earlier in the year there are not a few species to be found commonly at Filey Brig, a rich and productive locality. Continued and systematic work here ought to produce a rich harvest to the searcher after marine animals of all kinds, and it is much to be wished that naturalists visiting or resident on the coast should use their opportunities of investigating so promising a field of research.—J. DARKER BUTTERELL, Beverley, May 26th, 1895.

NOTES AND NEWS.

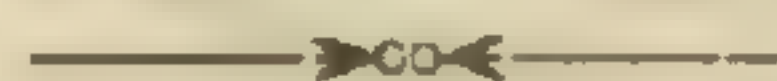
The Southport Society of Natural Science is still vigorous and flourishing, and has just published its Second Report, for 1891-93. It does not compare in value and interest with the excellent First Report which the Society published two or three years ago, for out of the 75 pages it contains there are only 10 pages to which naturalists will wish to refer a second time. Of these Mr. Joseph Leese, jun., M.A., occupies 7½ and a plate with an account of 'The Permian Rocks near Parbold'; and in an appendix Mr. G. W. Chaster occupies 2½ pages with a list of 25 'Additions to the List of Mollusca' contained in the First Report. The remaining 65 pages are occupied by the proceedings at the various meetings and by brief 'abstracts' of papers read. A perusal of these raises doubts in one's mind as to whether the funds of any society would not be much more usefully employed in other ways than publishing abstracts of papers which are in themselves not intended or adapted for printing in full.

NOTES AND NEWS.

We have a reprint from our old friend Mr. George Masee, F.R.M.S., principal assistant in the Royal Gardens at Kew, a 'Note on the Disease of Cabbages and allied Plants known as "Finger and Toe," etc.



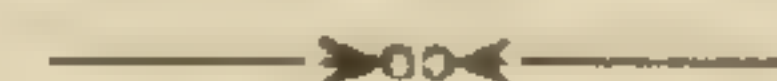
Applied Botany takes on many forms. It is announced that a society composed of students of the American Brewing Academy of Chicago numbers 200 members. The society has the unique name *Saccharomyces cerevisie*, as we learn from the Botanical Gazette, vol. xx. p. 87.



The Quarterly Journal of Microscopical Science for March 1895 contains a paper 'On the Mouth-parts of the Cypris-stage of Balanus,' by Mr. Theo. T. Groom, F.Z.S., late of the Yorkshire College at Leeds, which is illustrated by a lithographic plate.



Mr. Alfred Crawhall Chapman, of Sunderland, has an interesting paper in the 'Ibis' for last July (1894), pp. 339-351, entitled, 'A Contribution towards the Ornithology of West Jutland,' a Danish province which he and his brother, Mr. Abel Chapman, also an M.B.O.U., visited in May 1893.



An officer in the Queen's Bays, stationed in India, Lieutenant William Wilfrid Cordeaux, M.B.O.U. (a son of the well-known naturalist of Great Cotes) gives in the 'Ibis' for last July (1894) a list of the birds he observed in Dras and Suru during a journey through the Scinde Valley in 1893.



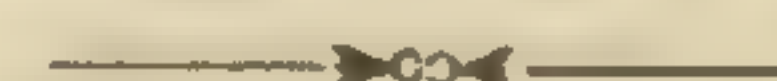
We must not forget to express our satisfaction—a feeling which we are sure all lovers of nature will share—that Spurn Point as a breeding-place for wild birds is to be absolutely protected for five years to come, and also that an additional fortnight has been added to the close time in the East Riding of Yorkshire.



The Scarborough Field Naturalists' Society, which is one of the most useful and practical working bodies of its kind in the north, not long ago issued its printed report for 1894, detailing much good systematic work done, nearly all branches of natural history being represented by records of local work. The reports form a tiny booklet of eight pages.



We have again the pleasure of noting a couple of papers by our old friend and colleague, Mr. Edgar R. Waite, F.L.S., now of Sydney. One of these is a 'Re-Description of *Aspidites ramsayi*, Macleay,' a large snake found in New South Wales; and the other is entitled 'Observations on *Dendrolagus bennettianus*, De Vis,' a tree-kangaroo from Northern Queensland. Both papers are illustrated by plates from the skilled pencil of the author.



A catalogue of the macro-lepidoptera of Derbyshire, which has been put together by Mr. Fred. W. G. Payne, from material supplied by numerous Derbyshire lepidopterists, has been published in recent numbers of 'The Entomologist,' the first instalment, including brief topographical introduction and list of authorities quoted, appearing in the February number.



In this connection it will be of interest to mention that in the same journal for August last year there was an article by Mr. W. D. Carr upon 'The Lepidoptera of Lincolnshire,' in which were enumerated the butterflies, sphinges, bombyces, cuspidates, and noctuæ. The title was, however, something of a misnomer, inasmuch as for 'Lincolnshire' we should read 'Lincoln,' as there are but few and incidental references to localities in the county lying beyond eight miles of its capital city. Nevertheless the list is an interesting and valuable contribution to a knowledge of the lepidopterous fauna of the district to which it refers.

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MARINE MOLLUSCA, 1889 to 1892.

THE present instalment has been compiled and edited by
WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the Bibliography of Mollusca (both fresh-water and marine) have appeared as follows:—

For 1884-5, in 'Naturalist,' May 1886, pp. 144-149.

„ 1886-7, „ „ Aug. 1888, pp. 247-263.

The records for marine and fresh-water mollusca have hitherto been given together, but will henceforth be separated, and the present instalment includes notices of records of marine forms for four years.

It ought here to be mentioned that the dates included in the Bibliographies of Marine Animals are necessarily regulated by that of the appearance of the volumes of the Fauna of Liverpool Bay. This course is necessitated by the fact that papers included in the Transactions of the Liverpool Biological Society and the Annual Reports of the Liverpool Marine Biological Station are always reprinted in the volumes on the 'Fauna.' The last volume of that work appeared in 1892, so that until the next volume appears we shall not be able to bring our bibliography of any marine group down to any later date. It appears to us questionable whether it is wise to thus reprint papers which are just as readily accessible in one form as another.

The counties and vice-counties of which cognizance is taken in these references are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts. ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; and 71, Isle of Man.

ANON. [not signed].

Isle of Man.

Liverpool Marine Biological Committee [at Fleshwick Bay, Isle of Man, Easter 1889; *Elysia viridis* and *Helcion pellucidum* found]. Research, May 1889, p. 203.

ANON. [not signed].

Lanc. S.

Rambles taken during the year 1889. . . . Southport [July 13th; *Buccinum undatum* (empty egg-capsules), and *Mytilus edulis*, noted]. 10th Ann. Rep. Manch. Micr. Soc., for 1889, publ. 1890, pp. 114-116.

- ANON. [not signed]. Isle of Man.
Opening of the Liverpool Marine Biological Station at Port Erin [with brief notice of dredgings; *Crania anomala*, *Pandora inequivalvis*, *Cynthia echinata*, and the rare little Ascidian *Forbesella tessellata*, off the Southern end of the Island, various places]. *Nature*, June 16th, 1892, pp. 155-156.
- L. E. ADAMS. Isle of Man.
Deep Limpet 'Scars' [made by *Patella athletica* near Spanish Head, Port St. Mary, Isle of Man, described]. *Nat.*, Nov. 1890, p. 335.
- FRANCIS ARCHER. Isle of Man, Lanc. S. and W., Furness.
Supplementary Report upon the Testaceous Mollusca of the L[iverpool]. M.B.C. District [enumerating one brachiopod (*Crania anomala*), 47 lamelli-branches, 2 scaphopods, a *Chiton* (*fascicularis*), 67 gastropods, 2 pulmonobranchs, and a cephalopod, for the district, with remarks and localities; an introduction gives additional bibliography and remarks on nine doubtful species; this paper was edited by J. R. B. Tomlin, owing to the sudden decease of the author]. *Trans. Liverp. Biol. Soc.*, vol. 6, 1891-2, publ. 1892, pp. 105-121; reprinted in vol. 3 of *Reports on Fauna of Liverpool Bay*, 1892, with pagination altered to 59-75.
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Donations to Collection [of *Conch. Soc.*; *Cypræa moneta* and *Solen ensis* var. *scimitar* from Seascale; *S. siliqua* from Saltburn]. *J. of Conch.*, Oct. 1891, p. 386.
- H. C. CHADWICK. Lanc. S.
Rambles during the year 1887.—Southport [May 7th; *Natica monilifera* and three nudibranchs—*Doto coronata*, *Lamellidoris bilamellata*, and *Fiona nobilis*—noted]. *Ann. Rep. Manch. Microsc. Soc.*, for 1887, publ. 1888, p. 62.
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York N.E., Lanc. S.
- T. D. A. COCKERELL.
North of England Specimens in the British Collection at the British Museum [includes *Trophon barvicensis*, *Chrysodomus* (*Fusus*) *turtoni*, *C. norvegicus*, *C. gracilis*, *C. propinquus*, *Mytilus modiolus*, *Lionesus*]
- Naturalist,

(*Buccinopsis*) *dalei*, *Buccinum undatum*, *Marsenia* (*Velutina*) *flexilis*, *Natica montagui*, *N. grænlandica*, *N. islandica*, *Scalaria trevelyana*, *Littorina littoralis*, *Acmaea virginea*, *Patella vulgata* var. *athletica*, *Chiton levis*, *Scrobicularia piperata* and *Montacuta substriata* from Northumberland; *Odostomia unidentata*, *O. interstincta*, *Eulima bilineata*, *Littorina neritoides*, *Lacuna pallidula*, *Rissoa parva* var. *interrupta*, *R. inconspicua*, *Trochus helycinus*, *Patina* (*Helcion*) *pellucida* var. *levis*, *Chiton cinereus*, *C. ruber*, *C. fascicularis*, *Philine scabra*, *Cylichna cylindracea*, and *Atys* (*Bulla*) *utriculus* from Sunderland; *Chrysodomus gracilis*, *Natica catena*, *Odostomia rissoides*, *Littorina rudis* and vars. *tenebrosa* and *saxatilis*, *L. littoralis*, *Rissoa semistriata*, *Trochus montagui*, *Acmaea testudinalis*, *Chiton ruber*, *C. fascicularis*, *Aplysia punctata*, *Pholas crispa*, *Alya truncata*, *M. arenaria* and *Anomia aculeata* from Scarborough; *Stylifer turtoni* from Durham; *Aporrhais pespelicani* from Yorkshire; *Littorina rudis* var. *jugosa* from North of England; *Chiton cinereus* from Whitby; *Ch. ruber* and *Diaphana* (*Utriculus*) *hyalina* from Cullercoats; *Atys utriculus* from Berwick; *Solen ensis* from Liverpool; *Panopæa norvegica* and *Fusus antiquus* from Dogger Bank]. Nat., Aug. 1888, pp. 227-231.

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CHARLES CRAWSHAW.

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J. PERCY A. DAVIS.

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Report of the Yorkshire Marine Zoology Committee; presented to the Yorkshire Naturalists' Union, Nov. 20th, 1889 [*Littorina littorea*, *L. littoralis*, *L. rudis*, *Trochus cinereus*, *Chiton fascicularis*, *Tellina tenuis*, *T. solidula*, *T. fabula*, *Saxicava rugosa*, *Mactra subtruncata*, *M. stultorum*, *M. solida*, *Venus striata*, *Solen ensis*, *Purpura*, and eggs of *Buccinum undatum*, all collected at Filey Brig, 14th Sep., 1889]. Nat., Jan. 1890, pp. 3-4.

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Cumberland.

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ROBERT GARNER.

Isle of Man.

Notes on the Natural History of the Isle of Man [discussing occurrence of *Pholas crispata*, *Solen ensis candidus*, *Lutraria elliptica* (probable), *Cardium tuberculatum* often mistaken for *C. aculeatum*, *Natica monilifera*, *Anomia*, *Orbicula* or *Crania*, and *Pecten tigrinus*]. Trans. I. of Man N.H.S., vol. 1, 1879-84, publ. 1888, pp. 87-88.

CARLETON GREENE.

Dogger Bank.

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A. HAVILAND.

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The Necessity for Collecting and Arranging the Ascertained Facts relating to the Glaciation of the Isle of Man [discussed, and reference made to *Pectunculus pilosus*, *Astarte pisiformis* S. Wood (*A. burtinii* Laj.) and *Nassa monensis*]. Back Transactions of Isle of Man N.H.S., p. 64, publ. with Yn Lioar Manninagh, Oct. 1889.

[W. A.] HERDMAN.

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W. A. HERDMAN.

Cheshire, Isle of Man.

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Notes on Variation in the Tunicata [as observed in Liverpool M.B.C. district]. First Rep. Fauna of Liverp. Bay, 1886, pp. 354-364, and plate 9.
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Marine Biology and the Electric Light [giving results of experiments in Port Erin and Ramsey Bays, May 1888; *Pectunculus glycymeris*, *Pleurobranchus membranaceus*, *Ascidia venosa*, *A. plebeia*, *Corella parallelogramma*, *Polycarpa* sp., and *Leptoclinium* sp.]. Nature, June 7th, 1888, pp. 130-131.
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The Foundation and First Season's Work of the Liverpool Marine Biological Station on Puffin Island [including notes on the rich fauna of Hilbre Island; *Doris proxima*, *D. subquadrata*, *Eolis concinna*, *Embletonia pallida*, and *Antiopa hyalina* mentioned]. Proc. Liverp. Biol. Soc., vol. 2, 1887-88, publ. 1888, p. 39; Fauna of Liverpool Bay, vol. 2, 1889, same pagination; and separate report, 1888, p. 4.
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Note on some British Specimens of *Hero formosa*, Lovén [dredged off Northumberland coast by G. S. Brady]. Proc. Liverp. Biol. Soc., vol. 3, 1888-9, publ. 1889, pp. 237-8; reprinted, with pagination altered to 110-111, in Second Report on Fauna of Liverpool Bay, 1889.
- W. A. HERDMAN and J. A. CLUBB. Cheshire, Isle of Man, Lanc. S.
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Second Report upon the Tunicata of the L[iverpool]. M.B.C. District [recording, with details, *Botryllus schlosseri* Pall., *Distoma rubrum* Sav., *Amaroucium proliferum* M.-Edw., *Leptoclinium candidum* (?) Sav., *Diplosoma*

gelatinosum M.-Edw., *Clavelina lepadiformis* O.F.M. (this also for Hilbre), *Perophora listeri* Wieg., *Ciona intestinalis* L. (this also for Hilbre), *Ascidia mentula* O.F.M., *A. plebeia* Ald., *Ascidella venosa* O.F.M., *A. virginea* O.F.M., *A. scabra* O.F.M., *A. aspersa* O.F.M., *Corella parallelogramma* O.F.M., *Styela grossularia* Van. Ben., *Polycarpa pomaria* Sav. (also at Hilbre), *Cynthia echinata* L., *Eugyra glutinans* Möll., *Molgula occulta* Kupff., and *M. hancocki* n.sp., for the Isle of Man, *M. citrina* A. & H. for Cullercoats and Whitby, and *Modiolaria marmorata* for Isle of Man]. Proc. Liverp. Biol. Soc., vol. 3, 1888-9, publ. 1889, pp. 240-260, and plate 13; reprinted, with pagination altered to 113-133, in Second Report on Fauna of Liverpool Bay, 1889.

W. A. HERDMAN.

Cheshire, Isle of Man.

The Second Annual Report of the Liverpool Marine Biological Station on Puffin Island [with passing note on the attempted introduction there of *Dendronotus arborescens* from Hilbre Island, occurrence of *Venus mercenaria* in the district, and abundance of *Hydrobia ulvæ* near Hilbre Island, *Mytilus edulis* there, *Pectunculus glycymeris*, *Pecten maximus*, and *Buccinum undatum* off the Isle of Man (dead), *Pleurobranchus membranaceus*, *Ascidia venosa*, *A. plebeia*, *Corella parallelogramma*, *Polycarpa* sp. and *Leptoclinium* sp. off the Isle of Man]. Proc. Liverp. Biol. Soc., vol. 3, 1888-9, publ. 1889, pp. 36-37, and map; reprinted 1889, separate Report of 26 pages in cover; also included in Second Report on Fauna of Liverpool Bay, 1889, with slightly different pagination, pp. 1-24.

W. A. HERDMAN.

Isle of Man.

The Liverpool Marine Biology Committee's Easter Dredging Cruise [round the S. end of the Isle of Man, Ap. 18th, 1889, and following days: *Lyonsia norvegica*, *Pectunculus glycymeris*, *Ascidia venosa*, and *Sagitta*, noted between Port Erin and the Calf of Man]. Nature, May 9th, 1889, p. 47.

W. A. HERDMAN.

Isle of Man.

Brief Notes on the Marine Invertebrate Fauna of the Southern End of the Isle of Man [enumerating *Eolis tricolor*, *Goniodoris castanea*, *Clavellina lepadiformis*, *Cynthia rustica*, *Trochus zizyphinus*, *Pectunculus glycymeris*, *Aplysia punctata*, *Eolis lineata*, *E. picta*, *E. amana*, *Doto fragilis*, *Molgula occulta*, *Diplosoma gelatinosum*, *Morchellium argus*, *Eugyra glutinans*, *Corella parallelogramma*, and *Styela grossularia*]. Back Trans. I. of Man N.H. Soc., i., 54-56; publ. with Yn Lioar Manninagh, July 1889.

W. A. HERDMAN.

Cheshire.

On the Structure and Function of the Dorsal Papillæ in Nudibranchiata [an anatomical paper, with references to the occurrence of *Tritonia* (or *Candiella*) *plebeia*, and *Doto coronata* at Hilbre Island]. Rep. 59th Meeting of Brit. Ass., Newcastle, 1889, publ. 1890, p. 632.

W. A. HERDMAN.

Cheshire.

On the Structure and Functions of the Cerata or Dorsal Papillæ in some Nudibranchiate Mollusca [as observed in *Doris*, *Ancula cristata*, *Tritonia plebeia*, *Dendronotus arborescens*, *Doto coronata*, and *Eolis* collected either at Puffin Island or Hilbre Island; habits discussed]. Quart. Journ. Micro. Sc., April 1890, pp. 41-63, and plates 6-10.

W. A. HERDMAN.

Cheshire.

Opening Address to the Liverpool Biological Society [with notes on *Tritonia* (or *Candiella*) *plebeia* and *Doto coronata* at Hilbre Island]. Trans. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, pp. 17-18.

W. A. HERDMAN.

Isle of Man.

Third Annual Report of the Liverpool Marine Biological Station on Puffin Island [with record of *Elysia viridis* not rewarding search at Fleshwick Bay; and of *Lyonsia norvegica*, *Ascidia venosa*, and *Cynthia tessellata* off the Manx coast]. Trans. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, pp. 59, 60 and 70; reprinted with altered pagination, pp. 24, 25 and 35, in Third Report on the Fauna of Liverpool Bay, 1892; reprinted as a separate Report, with pagination again altered to 26, 27 and 37, 1890.

Naturalist.

W. A. HERDMAN.

Cheshire.

Some Experiments on feeding Fishes with Nudibranchs [carried out in tanks at the Liverpool Museum ; full details of the experimentation given ; the nudibranchs used were *Doris bilamellata* from the rocks at New Brighton, *Ancula cristata*, *Dendronotus arborescens*, *Eolis picta*, and *E. rufibranchialis* from Hilbre Island]. Nature, June 26th, 1890, pp. 201-203.

W. A. HERDMAN and J. A. CLUBB.

Cheshire, Isle of Man.

Third Report upon the Nudibranchiata of the L[iverpool]. M. B. C. District [recording *Lamellidoris bilamellata* L., *L. proxima* A. & H., *Acanthodoris pilosa* O.F.M., *Ancula cristata* Ald., *Facelina* (*Acanthopsole*) *drummondi* Th., *Coryphella landsburgi* A. & H., *Galvina picta* A. & H., and *Cratena viridis* Forb., for Hilbre Island, *Lamellidoris proxima* O.F.M., *Goniodoris nodosa* Mont., *Polycera quadrilineata* O.F.M., *Ancula cristata* Ald., and *Cratena viridis* Forb., from the Isle of Man ; tabulation of 31 species for Mersey estuary and Hilbre, and 18 for Isle of Man, follows ; then notes of *Lamellidoris bilamellata* from New Brighton, *Dendronotus arborescens*, *Coryphella rufibranchialis* from Hilbre, in an account of some experiments on feeding them to fishes in tanks]. Trans. Liverp. Biol. Soc., vol. 4, 1889-90, publ. 1890, pp. 131-169 and plates 6-9 ; reprinted with same pagination, in Third Report on Fauna of Liverpool Bay, 1892.

W. A. HERDMAN.

Isle of Man, Cheshire.

Fourth Annual Report of the Liverpool Marine Biological Station on Puffin Island [including notes on *Eolis papillosa*, *Acanthopsole coronata*, *Coryphella rufibranchialis*, *Cuthona nana* (?) *Galvina picta*, *Dendronotus arborescens*, *Ancula cristata*, and *Doris bilamellata* at Hilbre Island, in Feb. 1890, *Coryphella landsburgi* there in March (first time since 1849 and 1853), protective resemblance of *Doris bilamellata* there, great profusion of *Ancula cristata*, occurrence of *Doto coronata* and *Cratena viridis* at Hilbre Island, latter also at Isle of Man, and remarks on comparative edibility of various nudibranchs ; an unusual search for the large examples of *Fusus antiquus* in the 'central area' of the Irish Sea, occurrence of *Philine aperta*, *Eolis tricolor*, *Pandora inequivalvis*, *Venus chione*, *Puncturella noachina*, and *Adeorbis subcarinatus* when dredging 15 miles N.W. of Liverpool Bar, *Chiton discrepans* off the Isle of Man]. Trans. Liverp. Biol. Soc., vol. 5, 1890-91, publ. 1891, pp. 31-33 and 45-47 ; reprinted as a separate Report, Jan. 1st, 1891, with pagination altered to 15-17 and 29-31 ; reprinted in Third vol. of Reports on Fauna of Liverpool Bay, 1892, with pagination again altered to 13-15 and 27-29.

W. A. HERDMAN.

Isle of Man, Chesh., Lanc. S. and W.

List of Papers on the Fauna and Flora of Liverpool Bay, published since 1886 as a result of the L.M.B.C. investigations. Appendix B to 4th Ann. Rep. of Liverp. M.B. Station on Puffin Island, Jan. 1st, 1891, pp. 46-51 ; reprinted in Trans. Liverp. Biol. Soc., vol. 5, 1890-91, pub. 1891, pagination altered to 62-67 ; reprinted in third vol. of Reports on Fauna of Liverpool Bay, 1892, pagination again altered to 44-49.

W. A. HERDMAN.

Cheshire, Lanc. W.

Fifth Annual Report of the Liverpool Marine Biological Station now on Puffin Island [noting an attempt to introduce Hilbre examples of *Dendronotus arborescens* at Puffin Island ; disappearance of *Mytilus edulis* at Hilbre ; and occurrence of *Fritillaria furcata* and *Oikopleura* at St. Anne's]. Separate Report, 1892, pp. 20-23 ; reported in Trans. Liverp. Biol. Soc., vol. 6, 1891-2, publ. 1892, pp. 27 and 30 ; reprinted in vol. 3 of Reports on Fauna of Liverpool Bay, 1892, pp. 18 and 21.

W. A. HERDMAN.

Lanc. W

Notes on the Structure of Oikopleura [with record of one, probably *O. flabellum* J. Müll. captured at St. Annes-on-the-Sea]. Trans. Liverp. Biol. Soc., vol. 6, 1891-2, publ. 1892, pp. 40-56 and plates 1-4 ; reprinted in vol. 3 of Reports on Fauna of Liverpool Bay, 1892, with pagination altered to 31-47.

W. C. HEY.

York N.E.

Notes on Decapodous Crustacea found at Redcar [also noting *Trochus cinerarius*, *Purpura lapillus*, *Buccinum undatum*, and *Natica alderi*]. Nat., March 1887, p. 86.

W. C. HEY.

York N.E.

Salt Scar [at Redcar; *Doris*, *Æolis*, *Patella pellucida* and var. *levis*, *Cypræa europæa*, *Chiton marginatus*, *Ch. ruber*, and *Ch. fascicularis* mentioned as occurring]. Nat., April 1892, pp. 117-118.

H. H. HIGGINS.

Cheshire, Lanc. S.

Pioneers in Local Biology [giving Bibliographical Notes of work done in investigating the Fauna of Liverpool Bay; with special note of *Eledone cirrhosus* in the Mersey; *Venus fasciata*, *Trochus cinerarius*, *Chiton cinereus*, *Doris* and *Æolis* at Caldy Blacks, River Dee, *Sepioloidea atlantica* at Formby, a list of 28 species of Nudibranchiata of the Mersey and the Dee; note of *Sepia officinalis* from Burbo Bank; the paper finishes with a statistical account of the Fauna of the Mersey and the Dee, and naming some 'dominant' and some 'rare and remarkable' species]. First Report on the Fauna of Liverpool Bay, 1886, pp. 16-31.

RICHARD HOWSE.

Durham.

Catalogue of the Local Fossils in the Museum of the Natural History Society [at Newcastle; includes a South Shields record of *Cyprina islandica* (L.) in Scandinavian drift]. Nat. Hist. Trans. Northumb., Durh. and Newc., vol. 10, part 2, publ. 1890, p. 229.

W. E. HOYLE.

Cheshire.

Notes on the Cephalopoda collected by the L[iverpool] M.B.C. during the summer of 1885 [giving details as to *Eledone cirrosa*, *Sepioloidea atlantica*, and *Loligo media*, but only the first of which appears to have a definite locality, Hilbre Island]. First Rep. Fauna of Livrp. Bay, 1886, pp. 278-280.

PETER INCHBALD.

York S.E.

Egg-sacs of the Common Whelk [(*Buccinum undatum*) described from a cluster picked up at Hornsea, early in February 1888]. Field, Feb. 11th, 1888, p. 193.

J. M. JEFFCOTT.

Isle of Man.

Address of the Retiring President [of the Isle of Man N.H.S., 27th March 1890; on Manx words; baarnagh=the Limpet (*Patella vulgata*); fughage=Periwinkle (*Littorina littorea*)]. Yn Lioar Manninagh, Jan.-Ap. 1890, p. 156.

GEORGE JOHNSTON.

Cheviotland.

Selections from the Correspondence of Dr George Johnston Collected and Arranged by his Daughter Mrs. Barwell-Carter | Edited by James Hardy, LL.D. | . . . | Edinburgh | . . . | 1892 [8vo., pp. xxxv. + 547 and portrait; notes of *Arca noæ* and *Phasianella stylifera* in Berwick Bay (p. 17); *Kellia rubra* at Holy Island (p. 25); *Fusus* (now *Trophon*) *barvicensis* (p. 28); *Pleurobranchus plumula* and *Cypræa europæa* (p. 30 and 34); *Littorina rudis* and *L. littorea* (34), *Turbo saxatilis* (32), *Nassa incrassata* (34), *Cingula pulchella* (34), and also numerous species mentioned (pp. 35, 36, 37, 42, 44, 45); *Littorina rudis* in Cheviotland (p. 73); and *Lamellaria tentaculata* Mont., Holy Island (p. 156)].

HENRY K. JORDAN.

Dogger Bank.

On the Species and Varieties of the Genus *Fusus*, which inhabit the seas surrounding the British Isles [of *Fusus propinquus* Ald., Mr. J. T. Marshall dredged a good many specimens on the Dogger Bank off the Yorkshire Coast]. J. of Conch., July 1890, p. 233.

P. F. KENDALL.

Isle of Man.

[Exhibition of *Nassa serrata* and a *Columbella* near *C. sulcata*, from the sands and clays of the north of the Isle of Man]. Yn Lioar Manninagh, Jan.-Apr. 1890, p. 125.

- P. M. C. KERMODE. Isle of Man.
Address by the Retiring President . . . Delivered . . . March 11th, 1886
 [gives titles of papers dealing with the Ascidia and Mollusca of the Isle of Man; *Ascidia virginea* taken off Ballaugh, *Loligo media* in Ramsey Bay, and *Pholas candida* at Ramsey, mentioned also, with particulars]. Back Trans. I. of Man N.H.S., i., 71-72; publ. with Yn Lioar Manninagh, Oct. 1889.
- P. M. C. KERMODE. Isle of Man.
Fossil Shells from the Boulder Clay and Sand, North Ramsey [enumerated to the number of 15 Lamellibranchs and 13 Gasteropods; Cumming's lists of 18 of each of these classes reproduced, and remarks given on a few species]. Yn Lioar Manninagh, Oct. 1889, pp. 96-98.
- H. WALLIS KEW. Linc. N.
Lincolnshire Marsh Drains [and their Mollusca; *Melampus myosotis*, *Hydrobia ulva*, *Littorina rudis* and varieties, and *L. littorea*, noted for Mablethorpe, Trusthorpe and Saltfleetby]. Nat. World, Oct. 1886, pp. 181-183.
- H. WALLIS KEW. Linc. N.
Reminiscences of Ten Summers [at Louth; noting abundance of *Cardium edule* and *Littorina littorea*]. Garner, March 1st, 1888, p. 93.
- H. WALLIS KEW. Linc. N. and S.
[List of Marine] Shells of the Lincolnshire Coast [127 species and a few varieties included, with localities and other particulars; based on work done by the writer and Messrs. J. T. Marshall, B. Sturges Dodd, and Arthur Smith; the introduction gives some interesting particulars as to the coast, and as to occurrences of such exotic species as *Venus mercenaria*, *Crepidula fornicata*, *Nassa cornicula*, *Trochus conulus*, and *Terebratulina striata*; the concluding paragraph of the paper gives a few popular names and uses in vogue on the Lincolnshire coast]. Nat., Dec. 1889, pp. 357-365.
- G. W. LAMPLUGH. York S.E.
Fossils from the Sewerby Cliff-beds [tabulated; *Purpura lapillus*, *Littorina littorea*, *Ostrea edulis*, *Mytilus edulis*, *Pholas*, and *Saxicava*]. Report of 58th Meeting of Brit. Ass., Bath, 1888, publ. 1889, p. 334.
- W. C. M'INTOSH. Durham.
Note on the Occurrence of *Pleurophyllidia loveni* in Britain [the second British example was procured by Rev. R. C. Abbes from the fishing boats at Whitburn in Durham]. The Conchologist, June 24th, 1892, p. 21.
- J. T. MARSHALL. Linc.
On *Terebratula papillosa*, Marshall [a fossil found on the coast of Lincolnshire]. Journ. of Conch., Jan. 1888, p. 278.
- [A. D.] MICHAEL. 'North Sea.'
[*Perophora listeri* common . . . particularly in Anglesea and in the North Sea]. Proc. Quek. Micr. Club, Nov. 23rd, 1888; Journ. of Quekett Micr. Club, Jan. 1889, p. 352.
- HUGH MILLER. Cumberland.
Appendix on the Geology of the Silloth Dock [following a paper by Sir W. Turner; the Shell-bed described as containing *Ostrea edulis*, *Pecten opercularis*, *Mytilus edulis*, *Cardium edule*, *Fusus antiquus*, *Buccinum undatum*, *Littorina littorea*, *Turritella communis*, and *Tapes pullastra*]. Proc. Roy. Phys. Soc. of Edinburgh, vol. 8, part 2, session 1884-85, pub. 1885, p. 340.
- THOMAS J. MOORE. Lanc. S., Cheshire.
Note on the Possible Naturalization of the American Clam, *Venus mercenaria*, on the Coasts of Lancashire and Cheshire [describing results of the attempts to naturalize the species at various points]. First Rep. Fauna of Liverpool Bay, 1886, pp. 368-370.

Cheshire, Lanc. S., Durham, Northumberland,
Cheviotland, Isle of Man, Dogger Bank.

A. M. NORMAN.

Revision of British Mollusca [*Octopus vulgaris* Lam., Liverpool (Collingwood); *Ommastrephes sagittatus* (Lam.), Durham coast (A.M.N.); *Loligo forbesii* Steenst., Durham and Northumberland coasts (J. Alder), a pen from Northumberland coast in Newcastle Museum measuring 22 inches in length; *Sepia rupellaria* d'Orb., Northumberland coast (Alder, the spm. now in Newcastle Museum)]. Ann. and Mag. N. H., June 1890, pp. 452-484. [*Volvula acuminata* (Brug.), off Berwick (R. Howse in Newc. Mus.), the only instance of its occurrence off the east of England; *Doris johnstoni* A. & H., and *Acanthodoris pilosa* (Müll.), Liverpool district (Herdman); *A. subquadrata* A. & H., Liverpool district (Byerley); *Lamellidoris bilamellata* (L.), Northumberland coast (A. M. N.) and Cheshire coast (Byerley); *L. depressa* A. & H., Hilbre Island, Cheshire (Byerley); *L. proxima* A. & H., Liverpool district (Byerley); *Goniodoris castanea* A. & H., Isle of Man (Herdman); *Ancula cristata* (Alder), taken abundantly at Hilbre Island, Chesh., by Prof. Herdman, who found one specimen 'entirely of a hyaline transparent white colour, without any yellow markings on the dorsal papillæ, and with no opaque white pigment on any part of the body'; *Polycera lessonii* d'Orb., the Mersey (Herdman); do. var. *ocellata* A. & H., Liverpool (Byerley); *Tritonia hombergi* Cuv., Mersey and Isle of Man, 25 fath. (Herdman); *T. plebeia* Johnst., Hilbre Island, Cheshire (Herdman), Mersey and Dee (Collingwood); *Dendronotus frondosus* Asc., near Dogger Bank, 34 fath. (Meyer), Hilbre Island (Herdman); *Doto coronata* (Gm.), Liverpool district, many places (Herdman); *Æolis papillosa* (L.), Hilbre Island (Byerley), Isle of Man (Herdman); *Cuthona nana* A. & H., Hilbre Island (Herdman); *C. (?) aurantiaca* (A. & H.), Liverpool district (Price, etc.); *Cratena amœna* (A. & H.), off Port Erin, Isle of Man, 15 fath. (Herdman); *C. olivacea* A. & H., Mersey (Herdman), the Dee (Collingwood); *C. concinna* A. & H., Mersey, common (Collingwood); *Tergipes despectus* (Johnst.), Hilbre Island (Herdman), Mersey (Collingwood); *Embletonia pallida* A. & H., Mersey (Herdman); *Galvina exigua* A. & H., Mersey (Collingwood); *G. picta* A. & H., Liverpool district and off Port Erin, Isle of Man (Herdman); *Coryphella rufibranchialis* (Johnst.), Hilbre Island (Herdman); *C. landsburgii* A. & H., Hilbre Island (Herdman); *C. lineata* Lovén, off Port Erin, Isle of Man, 15 fath. (Herdman); *Facelina drummondii* (W. Thomps.), Mersey and Dee, very common (Collingwood); *F. coronata* (Forbes), Hilbre Island (Herdman); *Fiona marina* (Forsk.), Southport Pier (Vicars); *Antiopa cristata* (Delle Chiaje), Seaham Harbour, co. Durham (A.M.N.), River Dee (Collingwood), Mersey, (Herdman); *A. hyalina* A. & H., Hilbre Island (Byerley, etc.); and *Hero formosa* Lovén, off Salen, in the Isle of Man (Herdman); are the North-country records given]. Ann. and Mag. N. H., July 1890, pp. 60-91.

ALEYN LYALL READE.

Lanc. S.

Donations to Collections [of Conch. Soc.; *Philine aperta* and *Cylichna obtusa* from the shore at Blundellsands near Liverpool]. J. of Conch., Oct. 1891, p. 389.

A. L. READE.

Lanc. S.

A Few Words on the Study of Conchology. With special reference to the neighbourhood of Crosby [near Liverpool; includes notes upon the occurrence of *Turritella terebra*, *Buccinum undatum*, *Rissoa ulva*, *Philine aperta*, *Tornatella fasciata*, *Scalaria communis*, *Natica monilifera*, *Purpura lapillus*, *Murex erinaceus*, *Cardium edule*, *C. echinatum*, *Mya arenaria*, *M. truncata*, *Mytilus edulis*, *Pholas dactylus*, *Cyprina islandica*, *Scrobicularia piperata*, *Pecten opercularis*, *Tellina tenuis*, *Solen ensis*, *S. siliqua*, *Ceratisolen legumen*, with their comparative frequency]. Merchant Taylors' [School] Review, Crosby, No. 5, Ap. 1892, pp. 134-140.

GEO. ROBERTS.

York S.E., Linc. N.

American Shells in the River Humber [*Venus mercenaria*, observed in 1864, again in 1868, and steadily increasing]. Sci. Goss., May 1889, p. 115.

Naturalist,

- W. DENISON ROEBUCK [Recorder]. German Ocean.
Exhibits [to Conch. Soc., Nov. 4th, 1891 : *Mya truncata* trawled about 50 miles E.N.E. from Scarborough, sent by Wm. Ellis]. J. of C., Ap. 1892, p. 46.
- THOMAS SCOTT AND ANDREW SCOTT. Lanc. W.
[Cardium edule incidentally recorded for Morecambe Bay in a paper] on some new or rare Crustacea from the Firth of Forth. Ann. & Mag. Nat. Hist., Sep. 1892, p. 203.
- ARTHUR SMITH. Linc. W.
Occurrence of Dead Shells of Crepidula fornicata on Grimsby Beach [where they are brought with the American oysters deposited at Cleethorpes]. Nat., Sep. 1888, p. 275.
- THOMAS STEPHENSON. York N.E.
['Flithers' mentioned as a local name for Limpets (*Patella vulgata*), in a paper on] Bird-notes from Whitby . . . Nat., Jan. 1892, p. 22.
- HERBERT STONE. Cheshire.
Birmingham Natural History and Microscopical Society [*Pholas crispatus* exhibited from Hilbré Island]. Midl. Nat., Aug. 1889, p. 195.
- GEO. SWAINSON. Isle of Man.
On the Dalby Rocks [Isle of Man; list of captures in August 1888; *Cardium echinatum*, *Hermea bifida*, *Doris tuberculata*, *D. johnstoni*, *Chiton cinereus*, *C. albus*, *Trochus zizyphinus*, *T. striatus*, *Cyprica europæa*, *Littorina littoralis*, *L. obtusata*, *Purpura lapillis* (sic), *Buccinum undatum*, *Botryllus schlosseri*, *Botrylloides leachii*, *Diplosoma gelatinosum*, *D. crystallinum*, *Leptoclinum asperum*, *Amaroucium proliferum*, *Clavelina lepadiformis*, *Ascidia aspersa*, and *Polycarpa rustica* enumerated]. Wesl. Nat., Nov. 1888, p. 268.
- G. SWAINSON. Isle of Man.
Results of Dredging Excursion to Dalby, Aug., 1888 [enumerated; one lamellibranch, *Cardium echinatum*, 12 gastropods of the genera *Hermea*, *Doris*, *Chiton*, *Trochus*, *Cypræa*, *Littorina*, *Purpura*, and *Buccinum*; and 11 tunicates, of *Botryllus*, *Botrylloides*, *Diplosoma*, *Leptoclinum*, *Amaroucium*, *Clavelina*, *Ascidia*, and *Polycarpa*]. Vannin Lioar, Jan. 1889, p. 15.
- GEORGE SWAINSON. Isle of Man, Lanc. W.
Appendicularia, with its "Haus" [a general paper on Life-History, etc., with mention of capture of the rare *Ascidia lata* thrown up after a storm on the Blackpool coast, *Clavellina lepadiformis* in the Isle of Man, *Oikopleura flabellum* taken pretty constantly by surface-netting in the Ribble estuary, whenever the tide was flowing in strongly, and a species taken 21st June 1890 in the surface-net off the end of St. Anne's Pier, which is described as new under the name *Oikomikron mitrateton* Swainson]. Internat. Journ. Microsc., Jan. 1891, pp. 10-19, with woodcuts and plate 1.
- GEORGE SWAINSON. Lanc. W.
A New Form of Appendicularian "Haus" [as observed in *Oikopleura cophocerca* taken off St. Anne's Pier, June 1890; abstract of a paper read to British Association at Cardiff]. Journ. of Microsc., Jan. 1892, pp. 34-35.
- T. TALBOT [teste Index]. Isle of Man.
On the Mollusca of the Isle of Man [based on the works of Edward Forbes, and exhibiting his records in parallel columns, one devoted to records from the 'Malac. Monensis' (1838), and the second to those from 'Forbes and Hanley' (1848-53); notices of other papers are given in the prefatory matter, with discussion of several doubtful species; 209 species, belonging to 103 genera, are included in the list]. Trans. I. of Man N.H.S., Vol. 1, 1879-84, publ. 1888, pp. 28-50.

ISAAC C. THOMPSON.

Isle of Man.

[*Ascidia mentula* and *A. plebeia* from the Isle of Man, recorded in the] Third Report on the Copepoda of Liverpool Bay (the L.M.B.C. District). Proc. Liverp. Biol. Soc., vol. 3, 1888-89, publ. 1889, p. 186; reprinted, with pagination altered to p. 59, in Second Report on Fauna of Liverpool Bay, 1889.

GEORGE ROBERT VINE.

Linc. N.

Notes on Polyzoa found at Cleethorpes in 1875, 1879, and 1882 [with incidental mention of *Solen ensis* and *Buccinum undatum* being there also]. Nat., Jan. 1892, p. 9.

ALFRED O. WALKER.

Isle of Man.

[*Ascidia venosa* noted from Isle of Man in] Report on the Higher Crustacea of Liverpool Bay taken in 1889. Trans. Liv. Biol. Soc., vol. 4, 1889-90, publ. 1890, p. 241; reprinted, with same pagination, in Third Report on Fauna of Liverpool Bay, 1892.

CHARLES H. H. WALKER.

Isle of Man.

Tiding at Easter-tide [in the Isle of Man; *Littorina rudis* var. *sulcata*, *L. obtusata* and var. *fabalis*, *L. littæa* (sic), *Patella vulgata* (called 'flitter' by the Manxmen), mentioned]. Young Nat., July 1890, pp. 124-125. ['*Ensis siliqua*, commonly known as the Razor shell,' and *Buccinum undatum* (Manx name 'buccie') noted]. Young Nat., Nov. 1890, pp. 216-220.

NOTE—MOLLUSCA.

Tectura tectudinalis at Scarborough.—I have to record the occurrence of *Tectura tectudinalis* Müll., living, at Scarborough. This extends the range of this shell 22 miles South of Whitby, where Mr. H. Crowther recorded finding it living, in 'The Naturalist' for January 1879.—E. BRIERLEY, Glen View, Gledholt, Huddersfield, June 19th, 1895.

NOTE—COLEOPTERA.

Ocypus pedator Grav., at York.—My nephew, Mr. Gilbert Hudson, of York, who has recently taken up the study of British Coleoptera, has captured several specimens of this grand insect at York. When it is remembered that the only localities hitherto recorded for this scarce beetle are all in the extreme South, (viz. Dulwich, Southend, Folkestone, Brighton, Dover and Spitchwick in Devon), it will be realised what a very interesting fact in distribution we have to deal with. It is also very remarkable that in a district so well and so long worked by Coleopterists as the York neighbourhood, such a conspicuous insect should have hitherto remained undetected.—W. C. HEY, West Ayton, York, May 4th, 1895.

NOTE—BOTANY.

Vicia orobus and *Lemna trisulca* in Westmorland.—I wish to put on record the occurrence of the above-named plants in the county of Westmorland.

Vicia orobus has not till this summer been seen growing wild in any part of the county, and in Baker's 'Flora of the Lake District,' only one station, the old one of Willisel and Ray, is given for Cumberland. A few days ago, my son, Mr. G. E. Martindale, and myself found it growing among bushes and rocks on the hills bounding the valley of the Gowan, a tributary of the Kent.

Lemna trisulca.—Two centuries ago, Thomas Lawson found this plant in Westmorland, and under the old name of *Hederula aquatica* he noted it in his MS. Note Book. Some time ago, my son and I found it in ditches on Hole Moss, in the south of the county. Lawson gives no station for the plant he found, but from its position in his list among other plants of South Westmorland, it is very probable that his plants were growing near or at the place where we found it.—JOSEPH A. MARTINDALE, Staveley, Kendal, June 19th, 1895.

LONDON CATALOGUE OF BRITISH PLANTS: NINTH EDITION.

The | London Catalogue | of | British Plants. | Part I. | Containing | the
British Phænogamia, Filices, | Equisetaceæ, Lycopodiaceæ, | Selaginellaceæ,
Marsileaceæ, | and Characeæ. | [9 lines of explanation] | Ninth Edition. |
[By F. J. HANBURY] London : | George Bell & Sons, . . | 1895. [8vo.,
50 pages].

No one can do justice to this new edition in a short notice, for the number of additions and changes in nomenclature is enormous. On the whole we consider Mr. Hanbury's work a success, and certainly an improvement on the 8th edition. It should be so, for he has been aided in his arduous labour by Mr. B. D. Jackson, compiler of the Index Kewensis, by Mr. James Britten, Editor of the Journal of Botany, and by Mr. Arthur Bennett, now Editor of the Supplement to the 3rd Edition of the English Botany. 'These gentlemen,' the preface tells us, 'have not only met as a small committee at my house on many occasions, to consider the very numerous suggestions brought forward in our botanical periodicals, and by many correspondents and critics, but have also proved constant and willing referees throughout the work. Among those who have offered suggestions I may specially mention Dr. F. A. Lees, Messrs. W. A. Clarke, G. C. Druce, W. Pumfrey, and F. C. S. Roper. The Batrachian *Ranunculi* and *Characeæ* have been revised by Messrs. H. and J. Groves; *Epilobium* by the Rev. E. S. Marshall, who has also made valuable suggestions on the *Festucæ* and other plants, many of which are embodied in various parts of the *Catalogue*; *Viola*, *Anthyllis*, and *Juncaceæ* by Mr. W. H. Beeby; *Euphrasia* by Mr. F. Townsend; *Thalictrum* and *Alchemilla* by the Rev. E. F. Linton; *Rosa* and *Rubus* by the Rev. W. Moyle Rogers, who has devoted much time and attention to a very arduous work; *Salix* by the late Dr. F. B. White; *Potamogeton* and *Carex* by Mr. Arthur Bennett.'

This help given by specialists in their own genera must be an incalculable advantage to all workers with this new edition; but why, may we ask, were not the names of the specialists and the genera they were undertaking advertised long ago in our botanical and natural history periodicals. Nearly every collection of any size could have added a number of hybrids or varietal forms interesting to the student of a special genus, if not always of sufficient value to be added to the Catalogue. Mr. Hanbury assumes this by writing:—'During no period'—i.e., 1886-1895—'probably, has better critical field work been performed than that accomplished during the last few years. A large number of workers, a more advanced knowledge

of critical plants, a stronger tendency towards specialism, and greater facilities for exploring remote regions, have resulted in a large aggregate addition to our list.' The ninth edition contains 543 genera and 1,958 species, as against the 542 genera and 1,858 species of the eighth edition. 'Changes in nomenclature are, unfortunately, again numerous. It could hardly have been otherwise,' as Mr. Hanbury says. But there must be a finality even in this department, greatly to be desired. If we stick rigidly to the rule of priority—the *genera* not being accepted farther back than the year 1735, when Linnæus published the first edition of his *Systema Naturæ*, and the *species* farther back than 1753, when Linnæus first established the binominal system, now universally current, by the publication of the first edition of his *Species Plantarum*—a fixed nomenclature will be the result. The folly of following any other rule is aptly illustrated by the five names we have for one genus—*Buda*, *Lepigonum*, *Spergularia*, *Tissa*, and *Arenaria*—though this, perhaps, is an exceptionally difficult and not quite typical instance. There is even worse confusion in *Neckeria* (= 8th ed. *Corydalis*). *Rosa*, *Rubus*, and *Hieracium* are worthy of our present information, *Salix* especially so, thanks to the lists of Messrs. White and Linton. The Batrachian *Ranunculi*, on the other hand, are most disappointing. Have nine years' thorough work added nothing further to our knowledge of the relations of these difficult species? We hope, in conclusion, that Messrs. Bell and Sons, of Covent Garden, or some other enterprising firm, will bring out at once a small field flora like Mr. W. R. Hayward's Botanist's Pocket-book, following the new edition of the London Catalogue faithfully. All our larger floras are far behind date at the present time, and a mere list of names—many of them new—is absolutely useless without the specific characteristics and distinctions they represent being known and 'get-at-able' in a convenient form.—E.A.W.P.

NOTES AND NEWS.

Another of Mr. George Masee's valuable contributions to our knowledge of fungi lies before us in a reprint from the March number of the 'Annals of Botany.' The paper is 'A Revision of the Genus *Cordyceps*,' and it is well illustrated by a double-page plate. These are the fungi so remarkable as parasitic on insects, of which Dr. Cooke lately gave us a popular account.

We have again the pleasure of noticing one of the solid and useful contributions to our knowledge of the habits and life-history of marine animals which are the result of the careful and painstaking labours of our friend Mr. Arnold T. Watson, of Sheffield. A reprint from the ninth volume of the Transactions of the Liverpool Biological Society (1895, pp. 169-188 and plates 9-10) lies before us, in which he details his 'Observations on the Tube-forming Habits of *Panthalis oerstedii*,' as made on examples dredged in the Manx seas. It would be difficult to over-estimate the value of such researches as are embodied in this paper.

Naturalist,

THE YORKSHIRE NATURALISTS' UNION AT THE HOLE OF HORCUM.

THE opening excursion of the present year was fixed for the Hole of Horcum and the upper end of Newtondale, in continuation of the very successful excursion of 1886, when the valley was explored between Lewisham and Pickering. The date fixed was Monday, May 13th, but the excursion practically began on the Saturday, a few members, including Messrs. A. H. Pawson, John Farrah, A. Millward, W. Denison Roebuck, F.L.S., G. C. Dennis, F.E.S., and A. E. Hall, F.E.S., taking up their quarters at Pickering for the week-end, and exploring the neighbourhood of Lockton, the Saltersgate Moors as far as Cross Cliff, and the Staindale Valley.

For the Monday two main lines of route had been arranged, and were carried out; the parties in both cases leaving Lewisham station on the arrival of the 11.21 a.m. train from the south. The largest body, a mixed party of geologists and naturalists, set out to explore the Hole of Horcum under the geological guidance of the Rev. E. Maule Cole, M.A., F.G.S., and the President of the Geological Section, Mr. S. Chadwick, F.G.S.

The other party, smaller in number, were in charge of Mr. John Braim, of Pickering, whose intimate topographical knowledge, as well as his acquaintance with the natural history of the valley, was of great practical use. Mr. Wm. Fletcher and Major J. M. Mitchelson also accompanied this party, whose investigations did not extend more than about a couple of miles up the valley, there being plenty of occupation for them in so favourable a locality. Numerous birds were in song, and the river-banks and hill-slopes abounded in insect life. Butterflies were numerous, *Argynnis euphrosyne* and *Thanaos tages* being especially welcome sights to a West Riding eye, while of moths *Euclidia glyphica* and *Phytometra ænea* were on the wing, and in one of the woods a number of the ant-hills made by *Formica rufa* were of great interest. Conchologists were the ones to suffer, as the beautiful sunny weather was too dry to permit of many molluscs being seen, only a few being observed in the early morning before the dew was off the grass.

All members concentrated in the afternoon at Lewisham Station for the 3.52 p.m. train for Pickering, where, at the Black Swan Hotel, an excellent meat-tea was provided by Mrs. Longhorn, whose catering at Whitby when the Union met there some years ago was well remembered. The sectional meetings then took place, after which a visit was paid to Mr. Thomas Mitchelson's excellent and well-arranged museum of antiquities. The museum also contains

a number of birds, but the absence of data to these detracted much from their interest. Adjournment was then made to the open air for the general meeting, which was held within the historic walls of the Pickering Castle, which forms so attractive a recreation ground for the inhabitants of the little town.



EXPLANATION.—The Map is divided into square miles by horizontal and perpendicular lines. Levisham station is just at the lower edge of the map, and Goathland station altogether out of it, about $2\frac{1}{2}$ miles north. There is no station between.

The chairmanship of the general meeting was in the hands of Mr. Samuel Chadwick, F.G.S., of Malton, one of the vice-presidents, albeit the 'chair' itself was but a seat on a grassy bank. The

minutes having been accepted as read, the roll-call showed that the 50 or 60 members present were representatives of 12 Societies at Liversedge, Leeds (4), Scarborough (2), Goole, York, Sheffield, Malton and Harrogate. The Milnsbridge Naturalists' Society was then elected into the Union, and the following new members were also elected:—Mr. Councillor F. Crosland (Huddersfield), Mr. F. M. Tindall (Sheffield), Mr. H. M. Platnauer, B.Sc., F.G.S. (York), Mr. R. W. Crosland (Cleckheaton), Mr. C. T. Thornton Comber (Pickering), Mr. Wm. Goodall (Harrogate), Major J. M. Mitchelson (Pickering), and Mr. Uriah Bairstow (Halifax).

Thanks were then voted to the various landowners and shooting-lessees who had kindly given leave for the members to visit their estates, to the leaders of parties, and to Mr. Thos. Mitchelson and Mr. J. W. Wheldon for showing, the one his museum and the other his fish-hatching apparatus.

A vote of condolence to the widow of Mr. J. M. Kirk, of Doncaster, so long and well known to the members, was then adopted on the motion of Mr. M. B. Slater, F.L.S., seconded by the Hon. Secretary. On the proposition of the same members it was resolved to ask Mr. M. H. Stiles to accept the honorary secretaryship of the Union's Committee on Micro-Zoology and Micro-Botany, rendered vacant by Mr. Kirk's lamented decease. Mr. Abraham Lambert was at the same time appointed as Hon. Local Treasurer for Leeds. The Sections were then called upon to report through their respective spokesmen, as follows:—

For the Vertebrate Section, in the absence of all its officers, Mr. John Braim reported on the observations which had been made by himself, Major Mitchelson, Messrs. W. Fletcher, John Farrah, and W. Denison Roebuck, F.L.S. The share of the last mentioned was confined to trapping in Pickering Castle grounds, the sole result of which was an example of the Common Shrew. The only other mammals noted were the Water Vole, at Levisham, and the footprints of Otters, in the river below Pickering. The ornithological observations were made in Newtondale, above Levisham. A few members who were early on the ground, about 8 a.m., followed the beck upwards to Raindale and Wheathead, where they were joined by others coming by the forenoon train. The weather was very fine, warm and quiet, suitable for observing and noting the birds. The members were soon pained to find that the severe winter we have experienced had nearly killed off the resident birds. The Thrushes appear to have suffered most, the Missel and Song Thrush, usually so abundant, being only represented by a single specimen of each kind, and other families, such as the Tits, were also fearfully

decimated. The following is the total list of vertebrates seen or noted, the birds in very reduced numbers in comparison to former years :

Mammals : 3.	Wood Warbler.	Rook.
Common Shrew.	Blackcap.	Jackdaw.
Otter (footprints).	Whitethroat.	Green Woodpecker.
Water Vole.	Chiffchaff.	Wren.
	Goldcrest.	Cuckoo.
Birds :	Marsh Tit.	Swallow.
Spotted Flycatcher.	Longtailed Tit.	Martin.
Dipper (nesting).	Pied Wagtail.	Sand Martin.
Missel Thrush.	Tree Pipit.	Ringdove.
Song Thrush.	Meadow Pipit.	Pheasant.
Blackbird.	Sky Lark.	Peewit.
Ring Ouzel.	Blackheaded Bunting.	Common Sandpiper.
Redbreast.	Yellowhammer.	Reptiles : 1.
Whinchat.	Chaffinch.	Adder.
Grasshopper Warbler.	Greenfinch.	Fishes : 1.
Sedge Warbler.	Linnet.	Trout.
Garden Warbler.	Crow.	

With regard to the Adder, it may be mentioned that Mr. Robert Clark, of Pickering, captured one a few days previous to the meeting, of very unusual size, measuring nearly four feet in length.

The Conchological Section, too, was entirely unrepresented by its officers, and the only members of the section present and making observations were Messrs. J. and W. Hawkins, of York, and Mr. W. Denison Roebuck, F.L.S., of Leeds. The results of their investigations were, however, but small, the weather being much too fine and dry to permit of many molluscs being seen. Messrs. Hawkins noted *Hyalinia alliaria*, *Helix aspersa*, *H. nemoralis*, *H. hortensis*, *H. arbustorum*, *H. rufescens*, *Bulimus obscurus*, *Clausilia perversa*, and *Limnæa peregra*. Mr. Roebuck's observations related chiefly to the slugs, of which were found not far from Levisham Station in the early morning numerous and variously-coloured examples of *Arion ater*, including pale green and yellow ones of small size, as well as the typical black form, a few *A. subfuscus* and *A. hortensis*, plenty of *A. minimus*, one small *Limax maximus*, and plenty of *Agriolimax agrestis* under old sleepers. In the ditches near the station *Limnæa peregra* existed in great numbers. On the previous day, at Lockton, was found an example of *Helix hortensis* var. *lutea* 12345, in company with *Agriolimax agrestis* and *Arion ater*. Mr. John Braim showed the following species which he had collected about Pickering a few days before the excursion :—*Helix pulchella*, *H. itala* (*ericetorum*), *H. rufescens*, *H. virgata*, *H. hispida* (= *concinna*), *Bulimus obscurus*, *Cochlicopa lubrica*, *Clausilia perversa*, *Cl. laminata*, *Bythinia tentaculata*, *Sphærium corneum*, and *Pisidium pusillum*.

The Entomological Section was officially represented by its President, the Rev. W. C. Hey, M.A., and one of its Secretaries, Mr. A. E. Hall, F.E.S. Mr. Braim, of Pickering, Mr. G. C. Dennis, F.E.S., of York, and Mr. R. H. Barker, of Scarborough, also attended. Mr. Hall reported on the Lepidoptera as follows:—Of Butterflies the three 'whites,' *Pieris brassicæ*, *P. napi*, and *P. rapæ* were abundant throughout the district, *Anthocharis cardamines* common, *Argynnis euphrosyne* and *Thanaos tages* were common about Levisham. Of Nocturni a fine female of *Arctia fuliginosa* and a female of *Saturnia carpini* on the moors near Saltersgate Inn. A few cocoons of *Bombyx quercus* were noticed in the same locality. All these were observed on the 12th May. Of Geometræ *Tephrosia punctulata* was observed at Levisham, *Panagra petraria* was common, *Fidonia atomaria* abundant and very finely marked, *Eupithecia minutata* common, *Melanippe subtristata* common, and *Cidaria suffumata* common. Of Noctuæ young larvæ of *Epunda viminalis* were common amongst tallows, and *Phytometra ænea* was common and in very fine condition at Levisham. At Pickering Mr. Dennis, of York, took a fine *Hemerophila abruptaria* in his hotel (the White Swan), and several nests of larvæ of *Eriogaster lanestris* were noticed in the lanes.

The Rev. W. C. Hey, M.A., president of the Section, gave the report for Coleoptera, as follows:—Weeks of sunshine and east winds had put the moor into too dry a condition to be favourable for beetle-collecting, and, except the small dung-beetle (*Geotrupes sylvaticus*) very little was to be found there. Some dead sheep, victims no doubt of the late dreadful winter, yielded a few rather interesting species of necrophagous insects. The woods of birch, hazel, and fir, which fringe the steep banks by the railway, proved far the most prolific hunting ground. The little beck was remarkably barren. Forty-nine species were collected, namely:—

Cicindela campestris.
Carabus violaceus.
Pterostichus madidus.
Pterostichus vulgaris.
Loricera pilicornis.
Anchomenus fuliginosus.
Harpalus æneus.
Bembidium nitidulum.
Hydroporus nigrita.
Hydroporus pubescens.
Agabus bipustulatus.
Limnebius truncatellus.
Helophorus brevipalpis.
Hydræna riparia.

Aleochara fuscipes.
Tachyporus pusillus.
Philonthus splendens.
Dianous cærulescens.
Lesteva longelytrata.
Anthobium minutum.
Adalia oblitterata.
Chilocorus similis.
Mysia oblongoguttata.
Coccinella 10-punctata.
Meligethes rufipes.
Meligethes æneus.
Hister cadaverinus.
Silpha thoracica.

Byturus tomentosus.

Aphodius fossor.

Aphodius ater.

Aphodius luridus.

Aphodius fimetarius.

Geotrupes sylvaticus.

Dolopius marginatus.

Rhagium inquisitor.

Gonioctena pallida.

Lochmæa capreæ.

Rhynchites betulæ.

Apion fagi.

Hypera plantaginis.

Otiorhynchus picipes.

Sitones regentsteinensis.

Polydrosus undatus.

Polydrosus cervinus.

Polydrosus micans.

Anthonomus ulmi.

Blaps mucronata.

Meloe proscarabæus.

Mr. Roebuck collected in the valley just north of Levisham various dipterous insects, which were sent to Mr. P. H. Grimshaw, as well as a grasshopper (*Tettix bipunctatus*), which was common, an ephemerid (*Leptophlebia marginata*), and a caddis-fly (*Limnephilus sparsus*), for the names of which we are indebted to Mr. Geo. T. Porritt, F.L.S.

For the Botanical Section its Phanerogamic Secretary, Mr. A. H. Pawson, reported as follows:—The botanists of the party examined a large tract of ground. Several were on the spot on Saturday and spent the Sunday, under the able guidance of Mr. Braim and Mr. Clarke, on the moors between Horcum and Cross Cliff, visiting the habitat of *Trientalis* and *Cornus suecica*. They were thus free on Monday to ascend the valley to its head, and even to cross the watershed to Goathland, while the main body worked the ground nearer the starting point. The season had long been so backward that delighted surprise was felt at the enormous advance which vegetation had made in the brilliant sunshine and genial warmth of the previous fortnight. It may be said that the lost time had been regained. Yet the second week in May is an early date for flowering plants. Chiefly those which mature their buds under the earth, and push their bloom directly from the ground amid a cluster of guardian leaves, as the cowslip, the daisy, and the dandelion, make the great show at this period. Again, some others which make shift, though looking withered and almost dead, to keep above ground during the bitter winter to be the more ready for the long-expected spring, as the ground-ivy and the large stitchwort, can contrive to be almost even with them. But the dampness, no less than the rigour, of our English winter, compels most of our herbs to retire underground completely until the warmth of April tells them that they may safely emerge, and as in most species much leaf and stem has to be made before the flower can be formed, no great progress can be expected by this time. Yet these early flowers are so bright of hue, and appear in such immense quantities, that at no season of the year is the country more charmingly clothed than in the spring. The meadows

fairly glowed with dandelions. On every hand the lovely stitchwort hung its delicate bridal wreaths above beds of blue ground-ivy, while clumps of graceful water-avens, shyly hanging their apricot heads, adorned the level below. In some pastures the yellow umbels of the cowslip, changed to pale amber by the transparent chalices which half hide them, quite concealed all other herbage. We must not forget to include also the beauties of the orchards, which were then in the height of blossom, and which gave promise of most abundant crops of fruit. Plums, apples, pears, and cherries this year seem alike profuse. This was more than some of us had expected after the sunless skies of last summer; but, as Mr. Farrah remarked, these trees bloom off their old wood. The hawthorn, which relies upon the buds formed last year, is almost flowerless this spring.

The great rarity of the excursion was the Dwarf Cornel, which, scattered sparingly over the higher Scotch mountains, in England lingers only on these moors. Many a pilgrimage has been made to the shrine of this lowly flower—may all its votaries treat it with reverence! The rarer plants found were

Trollius europæus.
Aquilegia vulgaris.
Reseda luteola.
Helianthemum chamaecistus.
Cerastium arvense.
Genista anglica.
Prunus padus.
Spiræa filipendula.
Saxifraga hypnoides.
Drosera rotundifolia.
Conium maculatum.
Cornus suecica.
Scabiosa columbaria.
Centaurea scabiosa.
Crepis paludosa.

Trientalis europea.
Symphytum officinale.
Pinguicula vulgaris.
Plantago media.
Polygonum bistorta.
Myrica gale.
Salix repens.
Empetrum nigrum.
Epipactis latifolia.
Orchis morio.
Eriophorum vaginatum.
Eriophorum angustifolium.
Polystichum lobatum.
Lastræa dilatata.
Phegopteris dryopteris.

In all some 220 species of flowering plants and vascular cryptograms were identified.

Mr. M. B. Slater, F.L.S., reported on the Mosses and Hepatics found growing in the upper part of Newton Dale, in Saltersgate Beck, and on the moors near the Hole of Horcum. In so short a time as there is to collect during an excursion, it is impossible to gather all that grow in the district. He has, however, worked the ground a good many years, and can certify that all that are named in the following list are to be met with, and although he did not gather all that day, most of those named were seen growing, some of them not being in condition for good specimens. Mr. R. Barnes rambled over rather different ground to Mr. Slater. The district is a very rich one for

these plants, and there are several more that are met with which will be duly enumerated in the 2nd Edition of Baker's 'North Yorkshire.'

Mosses.

Sphagnum acutifolium Ehrh.
Sphagnum cuspidatum Ehrh.
Sphagnum subsecundum Nees.
Sphagnum tenellum Ehrh.
Sphagnum cymbifolium Ehrh.
Gymnostomum rupestre Schwg.
Leucobryum glaucum L.
Dichodontium pellucidum L.
Dicranella squarrosa Schrad.
Dicranum bonjeanii DeNot.
Seligeria recurvata Hedw.
Ditrichum flexicaule Schwgr.
Weissia cirrhata Hedw.
Ulota bruchii Hornsch.
Ulota crispa Hedw.
Orthotrichum saxatile Brid.
Entosthodon cricetorum Bals.
Distichium capillaceum L.
Aulacomnium palustre L.
Bartramia pomiformis L.
Philonotis calcarea B.&S.
Webera nutans Schreb.
Webera albicans Whl.
Bryum pendulum Hornsch.
Bryum inclinatum Swartz.
Bryum pseudotriquetrum Hedw.
Mnium hornum L.
Mnium punctatum Hedw.
Tetraphis pellucida L.
Tetradontium brownianum Dicks.
Pogonatum alpinum L.
Polytrichum commune L.
Polytrichum juniperinum Willd.
Fissidens exilis Hedw.
Fissidens adiantoides Hedw.
Pterygophyllum lucens Sm.
Thuidium tamariscinum Hedw.
Climacium dendroides L.
Brachythecium rivulare B.&S.
Eurhynchium crassinervium Tayl.
Plagiothecium pulchellum Hedw.

Plagiothecium sylvaticum L.
Camptothecium lutescens Huds.
Hypnum commutatum Hedw.
Hypnum palustre L.
Hypnum filicinum L.
Hypnum stellatum Schreb.
Hylocomium splendens Dill.
Hylocomium squarrosum L.
Hylocomium loreum L.
Hylocomium triquetrum L.

Hepaticæ.

Marchantia polymorpha L.
Preissia commutata Nees.
Conocephalus conicus L.
Frullania tamarisci Dum.
Radula complanata L.
Lepidozia reptans L.
Lepidozia setacea (Web.) Mitt.
Cephalozia bicuspidata L.
Cephalozia lammersiana Hueb.
Hygrobiella laxifolia (Hook.) Spruce
Lophocolea heterophylla Schrad.
Lophocolea bidentata L.
Kantia trichomanis L.
Scapania undulata Dill.
Scapania resupinata Dum.
Scapania purpurascens Hook.
Mylia taylori Hook.
Jungermania crenulata Sm.
Jungermania sphærocarpa Hook.
Jungermania riparia Tayl.
Jungermania barbata Schreb.
Jungermania ventricosa Dicks.
Nardia emarginata Ehrh.
Nardia scalaris Schrad.
Nardia repanda Hueb.
Nardia hyalina Lyell.
Pellia calycina Tayl.
Aneura pinguis L.
Aneura sinuata Dicks.

The Rev. William Fowler, M.A., mentioned that no fungi were observed, and no observations were made on other low forms of vegetable life, although a few gatherings of water which it was hoped would be found to contain algæ were collected for Mr. W. West on the Saltersgate Moors, and in Staindale.

For the Geological Section its president, Mr. Samuel Chadwick, F.G.S., reported that the active collectors present included himself, Rev. S. Jenkinson, Mr. Oldfield, Mr. T. Comber, Mr. Jones and the Rev. E. Maule Cole, M.A., F.G.S., the last named being the leader.

The Rev. E. Maule Cole, M.A., F.G.S., writes that he and his party kept to the lower of the two platforms which characterise this district, viz., the Kellaways Rock. This bed, formed of hard irony sandstone, extends for miles, with a gentle dip southwards, on the northern margin of the Tabular Hills, which, in fact, are built upon it. The first halt was made at the quarry near the square tower or shooting-lodge, which may be seen from the railway. Here an excellent and charming view was obtained of the deep valley of Newton Dale, which represents on a small scale the cañons of the river Colorado, and affords an illustration of a similar process of denudation. In either case a level platform forms the surface, cut into with steep cliffs by the river running at the bottom, which runs at right angles to the line of hills, showing that the stream has worked its way downwards as the land originally rose upwards. Walking across the heather, another hour found the members assembled at Saltersgate Inn for light refreshments. Without much delay, a move was made for the upper platform of the Lower Calcareous Grit, but many were astonished to find that the platform, instead of being continuous, was hollowed out at this point into a vast combe—from which Celtic word the name Horcum is probably derived—capable of containing a meeting of nearly half Yorkshire. A barrier of a few yards only separates the Hole of Horcum from the Moors to the north, and in process of time may disappear, leaving a continuous valley through, as has already been the case in Bilsdale, at the western extremity of this line of hills. The floor of the Hole of Horcum is composed of the same Kellaways rock as the platform already alluded to outside, and is therefore an inlier.

Proceeding still higher to Winny Neb, a magnificent panorama was unfolded. Immediately in front, facing east, stood up Blakey Topping, a conical hill as viewed from the Wolds, 200 feet high, composed of Lower Calcareous Grit on the top, with sloping sides of Oxford Clay, resting on the Kellaways rock. It is a fine example of an outlier. Beyond it in the distance was seen Langdale End, a narrow ridge running north and south, composed of the same strata. Rather to the south-east appeared Cross Cliff, a fine range, and between it and Langdale the blue sea, with Scarborough Castle peeping over the end of Cross Cliff.

Still more to the south-east appeared Speeton Mill, and the perpendicular cliffs of Bempton and Buckton as far as Thornwick.

To the south the Chalk Wolds were seen the whole length of their northern outcrop to Acklam Brow; then the Howardian Hills, and to the west the Hambleton Hills, with the many nabs of the Tabular Hills, which face north from Helmsley Moor, past Spaunton and Cropton, and the Roman Camps at Cawthorne to the spectators' point of view.

The moorland stretched out beyond northwards, crowned in the distance with heaps of basaltic debris thrown up in working the whin-stone of this singular dyke. It was an impressive scene, and afforded an excellent example of subaerial denudation, such as is seldom met with to such a wide extent of country. The 'bridestones' were also pointed out a couple of miles off, and Mr. Cole explained that they were rocks in situ, which had decayed by weathering, much the same as the Brimham Rocks.

There was no time or opportunity for collecting fossils, for the object of the leader was to impress the stratigraphical features of Geology on the members. The return was made across the heather on the upper platform of Calcareous Grit, and en route an excellent example of the effect of a torrential flow of water in carving out a deep ravine was studied. Altogether the expedition was most enjoyable, and, it is to be hoped, profitable.

At the close a vote of thanks to Mr. Chadwick for presiding, proposed by Mr. John Farrah, of Harrogate, and seconded by Mr. G. J. Jones, of Malton, was adopted unanimously, and all the more enthusiastically as it was also the occasion of wishing him a hearty 'God-speed' on his approaching departure to New Zealand. In his reply Mr. Chadwick referred to the many happy and instructive meetings of the Union in which he had taken part, and observing that at the Antipodes they would long be kept in remembrance.

The members then adjourned to Major Mitchelson's residence to see a large collection of bones, urns, etc., recently found in an ancient lake-dwelling he has been investigating. They then proceeded (at the fish-hatchery) to listen to Mr. J. W. Wheldon's explanation of the process by which last year he reared many thousands of salmon, which were afterwards turned into the River Esk.—W. DENISON ROEBUCK.

NOTE—FUNGI.

Panus rudis in Britain.—A fungus, gathered by Mr. J. B. Robinson, near Louth, has been identified as *Panus rudis*. This species, Canon Duport, to whom I sent the specimen, tells me, has not been hitherto recorded for Britain.—J. LARDER, Louth, Lincs., May 31st, 1895.

Naturalist,

FURTHER ADDITIONS TO THE LIST OF SOME HEMIPTERA-HETEROPTERA OF LINCOLNSHIRE.

EXTRACTED FROM THE REGISTER KEPT BY
JAMES EARDLEY MASON,
Late President of the Alford Naturalists' Society.

[IN the 'Naturalist' for Oct. 1888, pp. 287-297, was published 'A List of some Hemiptera-Heteroptera of Lincolnshire, with Notes on Collecting,' and in the number for April 1889, p. 128, a paper giving 'Additions to the List of some Hemiptera-Heteroptera of Lincolnshire'; both papers being from the pen of Mr. Mason, and forming an exceedingly useful contribution to our knowledge of a department of the fauna of the county which, but for Mr. Mason's labours, would have been entirely neglected. In these two papers Mr. Mason recorded 132 out of about 420 heteropterous hemiptera known to inhabit the British Islands.

There are a number of additional records in the register-books kept by Mr. Mason for the Alford Naturalists' Society, and now in the possession of the Lincolnshire Naturalists' Union, including nine species additional to his published lists. These records, by the kind permission of the officers of the Union, we are enabled to publish here as what we fear must be looked upon as a final contribution to our knowledge of the Hemiptera-Heteroptera of the Alford District. For in spite of the word 'Lincolnshire' in the titles, the lists are almost entirely of species found within the parallelogram of chalk wold and sea-marsh which, having at its four corners the villages of Mablethorpe, South Ormesby, Skendleby and Mumby Chapel, formed the Alford district.

We have included in the present paper all additional localities for species cited in the former papers, as well as the nine additional species; but have not thought it necessary to give the fresh records of later date for already recorded localities. Otherwise the present paper is substantially a transcript of the Register-book.

Mr. Mason was a most careful student, and was in the habit of submitting his specimens for the judgment of Mr. Edward Saunders, so that the records given may be accepted with full confidence as to their reliability. A few records by other collectors are sufficiently indicated by the name; otherwise all the records are Mr. Mason's own. The arrangement and nomenclature are in accord with the two former papers. The prefixed asterisks (*) denote the 9 additional species.—W.D.R.]

Fam. *LYGÆIDÆ*.

- ***Trapezonotus agrestis** Fall. Mablethorpe ; sandhills north of the 'pull-over,' July 6th and 25th, 1889.
- Drymus sylvaticus** Fab. Tothill Wood near Alford, one, June 14th, 1890.
- Rhyparochromus chiragra** Fab. Mablethorpe ; sandhills, abundant July 6th, 1889, but all immature.
- Stygnus sabulosus** Schill. Saleby, three, September 1st, 1889.
- ***Nysius thymi** Wolff. Mumby Chapel, sandhills, August 18th and 20th, 1886, August 23rd and 25th, 1887. Mablethorpe, sandhills, August 12th, 1888 ; immature examples abundant there July 6th and 25th, 1889.

Fam. *TINGIDIDÆ*.

- ***Monanthia ampliata** Fieb. var. **similis** D.&S. Mumby Chapel, sandhills, three taken August 20th, 1886.
- Acalypta parvula** Fall. Mablethorpe, August 1881 (W. W. Fowler).

Fam. *CAPSIDÆ*.

- Miris calcaratus** Fall. Well footpath holt, one, March 3rd, 1885. Alford, March 27th and June 13th, 1885. Ailby, railway bank, June 14th, 1885. Rigsby, September 13th, 1885. Greenfield Wood, June 8th, 1887. Farlethorpe, May 25th, 1887. Claythorpe, near the mill, one, bright green, July 6th, 1887. Authorpe, June 26th, 1889 (F. Altoft). Tothill Wood, June 14th, 1890.
- Miris lævigatus** L. Rigsby, four, September 13th, 1885. Well Vale, chalk-pit, several, September 10th, 1885. Sutton-le-Marsh, sandhills, one, August 5th, 1885.
- Megaloceræa erratica** L. Sutton-le-Marsh, sandhills. Well, October 10th, 1888. Mablethorpe, August 12th, 1888. Haugh, several in Gipsy lane, July 3rd, 1889.
- Megaloceræa longicornis** Fall. Well, several by roadside at Miles Cross hill, August 16th, 1888.
- Megaloceræa ruficornis** Fall. Well Park, one, August 16th, 1888. Mablethorpe sandhills, one, August 18th, 1888.
- Teratocoris saundersi** D.&S. Mumby Chapel, sandhills, plentiful July 22nd, 1889.
- Leptopterna ferrugata** Fall. Rigsby, a female, July 17th, 1890.
- Phytocoris tiliaë** var. **marmorata** D.&S. Tothby, two on oak, September 6th, 1885.

- Phytocoris reuteri** Saund. Well, one, June 26th, 1889.
- Phytocoris ulmi** L. (nec D.&S.). Rigsby-with-Ailby, Spoil Bank, one, October 17th, 1888. Well, August 23rd, and October 6th, 1888. Mablethorpe, sandhills, one, August 14th, 1886. Mumby Chapel, sandhills, August 18th, 1886, and August 23rd, 1887.
- Calocoris striatellus** Fab. Well Vale, two on beech, June 25th, 1888. Authorpe, one, June 26th, 1889 (F. Altoft). Tothill Wood, on oak, June 14th, 1890, abundant on a single tree.
- Calocoris bipunctatus** Fab. Claythorpe, near the mill, on nettles, July 6th, 1887. Well, some in the holt by footpath, August 23rd, 1888, and some green specimens on *Ononis* at Miles Cross Hill, August 16th, 1888. Mablethorpe, August 18th, 1888. Saleby, September 1st, 1889. Ulceby-with-Fordington, September 3rd, 1890.
- Calocoris striatus** L. Tothill Wood, one on hawthorn, June 14th, 1890.
- Calocoris chenopodii** Fall. Well, one on *Ononis*, at Miles Cross Hill, August 16th, 1888.
- Rhopalotomus ater**. Claythorpe, four on railway bank, June 14th, 1890. Mawthorpe (Willoughby-with-Sloothby parish), one, July 19th, 1890.
- Liocoris tripustulatus** Fab. Thoresthorpe, one in Hill Close, July 8th, 1888.
- Plesiocoris rugicollis** Fall. Authorpe, brick-pit, two on willow, July 7th, 1888. Haugh, several in Gipsy lane, July 3rd, 1889.
- Lygus pabulinus** L. Haugh, some in Gipsy lane, July 3rd, 1889.
- Lygus contaminatus** Fall. Haugh, several on birch, July 3rd, 1889.
- Lygus pratensis** L. Very common at Well Vale, Mumby Chapel, Rigsby, and Claxby.
- Lygus kalmii** L. Alford, one, August 19th, 1889. Haugh, several in Gipsy lane, July 3rd, 1889.
- Lygus cervinus** H.-Schff. Authorpe, one, July 7th, 1888.
- Cyllocoris histrionicus** L. Tothill Wood, several on oak, June 14th, 1890.
- Byrsoptera rufifrons** Fall. Rigsby, several, both sexes, July 17th, 1889.
- Dicyphus globulifer** Fall. Thoresthorpe, two on *Lychnis*, July 8th, 1888.
- Dicyphus epilobii** Reut. Saleby Hill, plentiful, September 1st, 1889.

- Orthotylus nassatus** Fab. Well, August 23rd, 1888. Saleby, September 1st, 1889.
- Orthotylus tenellus** Fall. Well, on ash, August 23rd, 1888.
- Harpocera thoracica** Fall. Alford, one, June 26th, 1891.
- Phylus melanocephalus** L. Well Vale, abundant on oak, June, 26th, 1889.
- ***Phylus coryli** L. Well Vale, on hazel, June 26th, 1889. Haugh abundant in Gipsy lane.
- ***Globiceps flavonotatus** Wolff. Well, five on oak, June 16th, 1889. Tothill Wood, several on oak, June 14th, 1890.
- Psallus ambiguus** Fall. Authorpe, a few on apple. July 7th, 1888.
- Psallus variabilis** Fall. Authorpe, some on oak, July 7th, 1888, and June 26th, 1889. Haugh, some on oak, July 3rd, 1889. Tothill Wood, several on oak, June 14th, 1890.
- Psallus sanguineus** Fab. Saleby, four on willow, September 1st, 1889.
- Psallus varians** Schöff. Alford, abundant on oak in Holywell Plantation, July 1st, 1888. Authorpe, on oak, July 7th, 1888. Haugh, on oak, several, July 3rd, 1889. Tothill Wood, several, June 14th, 1890.
- ***Asciodema fieberi** D. & S. Rigsby, under willow, several, September 11th and 13th, 1886.
- Plagiognathus viridulus** Fall. Saleby, one, September 1st, 1889.

Fam. *ANTHOCORIDÆ*.

- Anthocoris nemorum** L. This abundant species has been found at Rigsby, Well, Farlesthorpe, Claythorpe, Haugh, etc.
- Anthocoris nemoralis** Fab. This very common species occurs at Well, Mumby Chapel, Greenfield, Sutton-le-Marsh, Rigsby, Farlesthorpe, Mablethorpe, Authorpe, Tothill Wood, Saleby, etc.
- Anthocoris sarothamni** D. & S. Well Vale, one, July 30th, 1885. Rigsby, one, September 30th, 1887.
- Triphleps minutus** L. Bilsby, old haystack, one, Nov. 24th, 1889. Well, one on larch, August 30th, 1889.
- Lyctocoris campestris** Fab. Bilsby, at bottom of an old haystack, several, April 29th and May 25th, 1889.

Fam. *NABIDÆ*.

- Nabis limbatus** Dahlb. Mablethorpe sandhills, three, August 18th, 1888. Mumby Chapel sandhills, a male, August 24th, 1887. Saleby, one, September 1st, 1889.

Nabis major Costa. This generally distributed insect occurs at Well, Rigsby, Mumby Chapel, Mablethorpe, etc.

Nabis ferus L. Mumby Chapel sandhills, August 21st, 1889. Saleby, one, September 1st, 1889.

Fam. *SALDIDÆ*.

Salda orthochila Fieb. Well, roadside near the railway gate-house, one, October 11th, 1891.

Salda cincta Schöff. Well, three in brick-pits, May 18th, 1889.

Fam. *HYDROMETRIDÆ*.

Hydrometra stagnorum L. Farlesthorpe, abundant, April 22nd, 1889. Sutton-le-Marsh, in a delph, July 6th, 1889.

Gerris thoracica Schum. This generally distributed and common species occurs at Tothby, Sutton-le-Marsh, Bilsby, Rigsby, Well, Mumby Chapel, etc.

Gerris lacustris L. This common species is generally distributed, and occurs at Tothby, Rigsby, Bilsby, Sutton-le-Marsh, Farlesthorpe, Well, Claythorpe, etc.

Gerris argentata Schum. Well, brickpits, four, May 18th, 1889.

Velia currens Fab. Generally distributed and common ; occurs at Tothby, Well, Bilsby, Claythorpe, Authorpe, Farlesthorpe, etc.

Fam. *NEPIDÆ*.

Nepa cinerea L. Mablethorpe, in rejectamenta of drain, April 3rd, 1886.

Fam. *NOTONECTIDÆ*.

Notonecta glauca L. Common in all stagnant waters ; occurs at Well, Bilsby, Farlesthorpe, Mumby Chapel, Mablethorpe, etc.

VAR. **maculata** Fab. Well, two in brickpit, May 30th, 1888.

Corixa geoffroyi Leach. Common ; occurs at Farlesthorpe, Well, Bilsby, Claythorpe, Sutton-le-Marsh, etc.

***Corixa affinis** Leach. Farlesthorpe, several, April 22nd, 1889.

Corixa hieroglyphica Duf. Tothby pond, May 2nd, 1885. Farlesthorpe, in brickponds, April 22nd, 1889.

Corixa sahlbergi Fieb. Alford, two in cop., April 11th, 1887. Farlesthorpe, in brickpits, April 22nd, 1889. Sutton-le-Marsh, abundant in delphs, September 30th, 1889.

Corixa linnæi Fieb. Farlesthorpe, in brickpit, May 25th, 1887.

***Corixa limitata** Fieb. Well, pond in orchard field, May 21st, 1888, and May 17th, 1889.

Corixa præusta Fieb. Farlesthorpe, in brickpits, April 22nd, 1889. Sutton-le-Marsh, in a delph, September 30th, 1889.

Corixa striata Fieb. Farlesthorpe, in brickpits, April 22nd, 1889. Well, in brickpits, one, May 30th, 1888, abundant November 2nd, 1889.

Corixa fabricii Fieb. Farlesthorpe, in brickpits, April 22nd, 1889.

VAR. **nigrolineata**. Well, one in brickpit, May 30th, 1888.

***Corixa mœsta** Fieb. Sutton-le-Marsh, in a delph, one, September 30th, 1889. Farlesthorpe, April 22nd, 1889. Bilsby, in a pond, June 1st, 1889.

NOTE—HEMIPTERA.

Hemiptera-Homoptera of Alford District.—[There are two insects of this group entered in the Alford Register, the particulars of which we give in Mr. Mason's own words:]

Centrotus cornutus L. Rigsby-with-Ailby parish, Rigsby Wood, June 2nd, 1889; J.E.M.

Triecphora vulnerata Ill. Aby-with-Greenfield parish, road-hedge near Greenfield Wood, many, June 8th, 1887; J.W.M. Rigsby-with Ailby parish, Ailby road-hedge, some, June 8th, 1887; J.E.M. Well Vale, one, June 10th, 1888; J.E.M.

—[Extracted from the Register kept by] JAMES EARDLEY MASON, Alford.

NOTES AND NEWS.

From Mr. John H. Cooke, F.G.S., F.L.S., Editor of the 'Mediterranean Naturalist,' who now resides at Lincoln, within our area, a reprint of a paper in the May number of the 'Geological Magazine'—in which he records the 'Occurrence of *Phoca rugosidens* Owen, in Maltese strata.'

We have to congratulate our colleague, Mr. Alfred Harker, M.A., on his appointment to a post on the Geological Survey of Scotland, although our felicitations are necessarily tinged with regret that it involves the necessity of his relinquishing the preparation of our Geological Bibliography. We understand that Mr. Harker's new duties will not involve any cessation of his work at Cambridge.

We regret to observe that the Great Auk, a fine example, which was the property of the late Sir William Milner, and which was deposited at the Leeds Museum for a number of years with the rest of the Milner collection—has been sold to the Museum of Science and Art at Edinburgh for £350. The regret is of course that the authorities of the Leeds Museum were not sufficiently alive to the importance of their own institution and to its true interests to make sure of the retention of so valuable a portion of its contents. The one redeeming feature in the matter is that the bird is now the absolute property of a public institution, as we hold that it is desirable all skins and eggs of the Great Auk should be.

The volume of Proceedings of the Warrington Literary and Philosophical Society for 1894-95, which was issued about mid-May, offers but little interest from the point of view of local research, the papers being all literary, even that on the migration of birds, by Mr. Charles White, which is merely a résumé of the views of leading ornithological writers. The most valuable and useful paper in the volume is that by Mr. Thomas May, F.E.I.S., on 'Ancient Stone Implements,' in which mention of numerous implements found in the course of construction of the Manchester Ship Canal is made, and figures of some of them given, as well as of the 'Bob's Bridge Skull,' and of a Roman vase found at Wilderspool.

PALMATED NEWT IN CHESHIRE.

CHARLES OLDHAM.

BYERLEY, in his Fauna of Liverpool, records three specimens of this newt, which were taken by his children in a stream at Upton in 1851. So far as I know there is no other Cheshire record. The two common species, *Triton cristatus* and *Lophinus punctatus* are plentiful throughout the county in ditches and ponds, particularly those near brickfields, but *L. palmatus* appears to be rare. In May 1894 Mr. T. A. Coward and I hunted in vain for two or three days for specimens in ponds near Parkgate and West Kirby, which are in the same neighbourhood as Byerley's locality; and I have examined scores of ponds and ditches in mid-Cheshire with as little success. On June 13th, however, I was fortunate enough to capture two females in a pond near Romiley station, and am not without hope that further search may result in the finding of other specimens in this neighbourhood.

It may be of interest to readers of 'The Naturalist' to give details of some rough experiments I made on the chameleonic and protective colour changes in this species.

When taken from the pond on the evening of June 13th, one of the newts (*a*), which was resting on black mud, was dark green, and the markings on the skin were hardly discernible; the other (*b*) was pale greenish yellow, and clearly showed the characteristic marblings of dark green: it approximated roughly to the colour of the yellow clay at the bottom of the pond. On reaching home at 8 p.m. I placed both newts in water in a glass dish standing on a white plate. At 8 a.m. on the 14th both were much paler, *a* being almost as light as *b*. At 7 p.m. the colours of both were identical. I then transferred *b* to a dish standing on black cloth. At 1.45 p.m. on the 15th it had become even darker in hue than *a* was when taken from the pond; at 5.30 p.m. the colour had further deepened. I then restored *b* to the dish on the white plate and placed *a* in the dish on the black cloth. At 8.10 p.m. *b* was noticeably lighter than *a*, and by 9 a.m. on the 16th the position was exactly reversed from what it was at 5.30 p.m. the day before; that is to say, *a* was now at the darkest and *b* at the lightest pitch. I then placed both in the dish on the white plate, and the dark *a* quickly changed colour, being at 10.30 a.m. scarcely deeper in hue than *b*. At 1 p.m. the two were undistinguishable except in size. The changes were only noticeable in the colour of the dorsal surface; the light ventral surface, which is unexposed to the view of enemies in the newt's natural state, remaining unchanged.

OCCURRENCE OF TWO EARLY AND RARE DIPTERA AT GRANGE.

R. H. MEADE,

Membre de la Société Entomologique de France: Bradford, Yorkshire.

WHILE at Grange-over-Sands during the first week of last April, when the weather was bright but cold, I noticed several small flies flitting about and settling upon the rocky paths, in the woods above Hazelwood. I thought at first that they were probably only little dung flies (*Borborus equinus*), which are usually very common in the early spring, but upon capturing a few of them I found that they were something very different.

They were of two distinct species belonging to separate families. One was a little so-called wasp fly (one of the *Syrphidæ*), of which I had never before seen an indigenous example, and which I believe has not been previously recorded as British. This little shining black species, about three lines in length, has the male characterised by the forehead being bearded with long black hairs, whence its name *Melanostoma barbifrons* Flin. The abdomen is marked by four small oblong yellowish white spots. I captured four specimens, two males and two females; the latter were black and very glabrous, without the hairy forehead, and with the abdominal spots absent or very indistinct. The *M. nitulida* Ztt. has been reputed to be the female of this species, but it decidedly differs from those which I found.

The other fly, which was rather smaller and more numerous, was a little *Muscid* named *Phorbia muscaria* F. It is not common, and I never found it before. Mr. Verrall gave me several specimens some years ago, and I find from the dates upon the labels that they were all likewise captured early in April; so this species must be considered as an early spring one.

Nothing is known, I believe, of the economy of either of these Diptera, but it would be interesting to know upon what their larvæ feed.

The life-history of many Diptera as well as of many other insects is still involved in mystery, and there is here a wide field of interest for naturalists who possess time and inclination for prying into the secrets of nature.

BRADFORD, June 10th, 1895.

Naturalist.

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LICHENS, 1888 to 1893.

THE present instalment has been compiled and edited by
WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the Bibliography of Lichens were published with the Cryptogamia in general, as follows:

For 1884—in 'Naturalist,' 1885, Oct., pp. 337-340.

„ 1885— „ 1886, June, „ 180-181.

„ 1886-7— „ 1888, Dec., „ 361-369.

The counties and vice-counties of which cognizance is taken in these references are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S.; 54, Lincoln N.; 56, Notts.; 57, Derby; 58, Cheshire; 59, Lancashire S.; 60, Lancashire W.; 61, York S.E.; 62, York N.E.; 63, York S.W.; 64, York Mid-W.; 65, York N.W.; 66, Durham; 67, Northumberland S.; 68, Cheviotland; 69, Westmorland with Furness; 70, Cumberland; 71, Isle of Man.

T. CLARKE.

Cumberland.

[*Cladonia digitata* var. *macilenta* from Buttermere exhibited to] Birmingham Natural History and Microscopical Society . . . June 14th, Midl. Nat., July 1892, p. 164.

HILDERIC FRIEND.

Cumberland.

A Mud-capped Dyke [in Cumberland; *Lecidea geographica*, *Peltigera canina*, and *Cladonia pyxidata*, noted]. Sci. Goss., June 1890, p. 136.

C. S. GREGSON.

Isle of Man.

A Day's "Scientific" Insect-Hunting on the Isle of Man in June [with a casual reference to *Lichen geographicus*]. Young Nat., Aug. 1887, pp. 153-155.

JAMES HARDY.

Cheviotland.

Report of the Meetings of the Berwickshire Naturalists' Club for the year 1889 [noting *Parmelia lanata*, *Peltidea rufescens*, *Sphaerophoron coralloides*, and *Cetraria glauca* for various stations in Cheviotland; and *Lecanora parella* at Mindrum]. Proc. Berw. Nat. Club for 1889, Vol. 12, No. 3, publ. 1890, pp. 436-506.

W. JOHNSON.

Northumberland S.

Lichen Memorabilia, 1884 [giving a list of 28 species of *Collema*, *Cladonia*, *Evernia*, *Ramalina*, *Parmelia*, *Physcia*, *Lecanora*, *Pertusaria*, *Lecidea*, *Opegrapha*, and *Graphis*, gathered in a day about Morpeth]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 8, part 2, 1886, pp. 217-219.

W. JOHNSON.

Cumberland, Northumberland, Durham.

Lichenology: *Evernia* [localities quoted for *E. furfuracea* (Fr.) and *E. prunastri* (Ach.) in three Northern Counties]. Wesl. Nat., Nov. 1887, pp. 281-282.

W. JOHNSON.

Cumberland, Northumberland S.

Lichenology: *Parmelia* [*P. perlata* (Ach.) in Cumberland, but always barren; *P. saxatilis* (Ach.) in great profusion in East Allendale, Northumberland; *P. borrieri* in the 'North of England']. Wesl. Nat., Dec. 1887, pp. 315-316.

July 1895.

- W. JOHNSON. **Isle of Man, Cumberland, Northumberland S.**
Lichenology : Parmelia [*P. caeperata* (Ach.) plentiful in Cumberland and Northumberland, and once used as a dye-stuff in Isle of Man; *P. fuliginosa* (Nyl.) splendidly in fruit about Asley and other parts of West Cumberland; *P. physodes* (Ach.) well-fruited in Ashgill Woods and other parts of Cumberland]. Wesl. Nat., Jan. 1888, pp. 339-340.
- W. JOHNSON. **Cumberland, Northumberland S.**
Lichenology : Physcia [*P. ciliaris* (L.) up North Tyne and in Cumberland]. Wesl. Nat., Feb. 1889, p. 371.
- W. JOHNSON. **Cumberland, Northumberland S.**
Lichenology : Gyrophorei [*G. polyphylla* on Kilhope Law, near the junction of the three northern counties; *Umbilicaria pustulata* (L.) in northern England only grows at Hermon's Hill, Wastdale, Cumberland]. Wesl. Nat., March 1888, pp. 20-21.
- W. JOHNSON. **Cumberland, Northumberland.**
Lichenology : Bæomyces [*B. rufus* (Huds.), North England; *B. icmadophilus* (Ehrh.), frequently met with on the Northumberland and Cumberland Fells]. Wesl. Nat., April 1888, pp. 53-55.
- W. JOHNSON. **Cumberland.**
Lichenology : Cladonia [*C. deformis*, Cumberland Fells, and *C. macilenta*, f. *polydactyla* Flk.; growing in abundance on the sea banks S. of Whitehaven, noted, with some details]. Wesl. Nat., Oct. 1888, pp. 247-249.
- W. JOHNSON. **North England.**
Lichenology : Cladina [*C. sylvatica* grows abundantly . . . on all our northern moors and fells]. Wesl. Nat., Nov. 1888, p. 275.
- W. JOHNSON. **Not in Cumberland.**
Lichenology : Roccella [not found in the North of England, searched for in vain on the Cumberland coasts]. Wesl. Nat., Dec. 1888, p. 314.
- W. JOHNSON. **Cumberland.**
Lichenology : Ramalina [*R. pollinaria* Westr. 'We have . . found . . growing somewhat plentifully on a wall by the roadside near Skelton, Cumberland]. Wesl. Nat., Jan. 1889, p. 342.
- W. JOHNSON. **Cumberland, Northumberland S.**
Lichenology : Usnea [*U. florida* L. 'we have gathered . . . well fruited in Ashgill Woods, near Alston, Cumberland, also in the neighbourhood of Wark, North Tyne'; *U. dasypoga* Ach., 'we gathered good specimens in Cumberland, but never in fruit']. Wesl. Nat., Feb. 1889, pp. 366-7.
- W. JOHNSON. **Northumberland S.**
Lichenologia : Alecatoria [*A. jubata* L., gathered at Swinhope, Allendale, 1876, 13 inches long, on fir]. Wesl. Nat., March 1889, p. 16.
- W. JOHNSON. **Northumberland S., Cumberland, Durham, York Mid W. and N.W.**
A Catalogue of Mr. N. J. Winch's Lichens, now in the Museum of the Natural History Society, Newcastle-upon-Tyne [254 species enumerated, with localities and critical remarks; prefaced by a biographical notice of Winch and other introductory remarks; an important paper]. Nat. Hist. Trans. Northumb. Durh. and Newc., Vol. 8, part 3, 1889, pp. 307-325.
- P. M. C. KERMODE. **Isle of Man.**
Introduction to the Study of Lichens in the Isle of Man [being lichen-generalities, the only species mentioned as Manx being *Cladina rangiferina*, *Stereocaulon paschale*, *Physcia ciliaris*, *P. parietina*, *Evernia prunastri*, *Parmelia saxicola*, and *Ramalina fraxinea*]. Back Trans. I. of Man N.H.S., i., 85-87; publ. with Yn Lioar Manninagh, July 1890.
- FREDERIC ARNOLD LEES. **York Mid W., N.W. and S.W.**
The Flora of West Yorkshire with a Sketch of the Climatology and Lithology in connection therewith | By | Frederic Arnold Lees | [3 lines
Naturalist,

of titles] | — | [2 lines of motto] | — | London: | . . | — | 1888 [8vo, pp. xiv. + 843. The Lichenes occupy pp. 631-660 and pp. 806-811; the total number of species recorded is 258; the introductory matter is but brief].

[J. A.] MARTINDALE.

Westmorland.

Lichens in Westmoreland [in Lowther Park, *Schizoxylon corticola* and *Calicium roscidium*, both new to Westmorland, the latter to Britain]. Gard. Chron., Feb. 27th, 1886, p. 272.

JOSEPH A. MARTINDALE.

York N.W., Westmorland, Cumberland.

The Lichens of Westmorland [continued; 50 species of *Lobarina*, *Ricasolia*, *Peltidea*, *Solorina*, *Nephromium*, *Peltigera*, *Physcia*, *Umbilicaria*, *Gyrophora*, *Pannaria*, *Pannularia*, *Coccocarpia*, *Leproloma*, *Lecanora*, *Psoroma*, *Squamaria*, and *Placodium* noted, carrying the total number to 171; *Gyrophora proboscidea* (Cross Fell), *G. cylindrica* (Sca Fell), *G. polyphylla* (Cronkley Scar, Yorks.), and *Lecanora hypnorum* (all the neighbouring counties), are also recorded for outside Westmorland]. Nat., Jan.-Feb. 1888, pp. 25-32.

J. A. MARTINDALE.

Westmorland & Furness.

Our District [= Westmorland and Furness, defined, described, divided into six river-basin districts, and illustrated by an excellent coloured map; each district has a list of its rarer lichens given; the list for the entire county amounts to 500, on the writer's own authority]. Wesm. Note-Book and Nat. Hist. Record, Part I, March 1888, pp. 1-19 of Record, with folding map.

J. A. M[ARTINDALE].

Westmorland.

A new Lecidea [parasitic on thallus of *Lecidea speirea* gathered near Ravensbarrow Crag in Kentmere; it is described, and called *L. multifera* n. sp.]. Wesm. Note-Book and Nat. Hist. Record, Vol. I, part 5, March 1889, p. 108.

JOSEPH A. MARTINDALE.

Westmorland.

Gyrophora spodochoa [added to the British Flora from Westmorland specimens; and two new Westmorland stations for *Umbilicaria pustulata*, making 4 known in all, placed on record]. Westm. Note Book & Nat. Hist. Record, Sep. 1889, pp. 161-162.

JOSEPH A. MARTINDALE.

Westmorland, Isle of Man, Cumberland.

The Lichens of Westmorland [enumerating 44 species of Westmorland *Lecanora*, also *Lec. fusco-atra* (Isle of Man), *Lec. chalybea* (Cross Fell range), *L. milvina* (Isle of Man and St. Bees), *L. glaucoma* (Lazonby, Cumb.), *L. subcarnea* (Keswick, Cumb.), and *L. prosechoides* (Isle of Man), as being likely to occur]. Nat., May and June, 1890, pp. 157-164.

J. A. MARTINDALE.

Westmorland, Furness.

The Study of Lichens, with especial reference to those of the Lake District [an interesting general discourse, species being alluded to merely in passing or in exemplification of the author's remarks]. Trans. Cumb. and Westm. Assoc., No. 15, 1889-90, publ. 1891, pp. 1-24.

GEORGE MASSEE.

Cheviotland.

A New Marine Lichen [*Verrucaria latevirens* n. sp., from Berwick-on-Tweed; *V. marina* (Deak.) Leight., from Berwick-on-Tweed]. J. of Bot., July 1892, pp. 193-4, and pl. 324; rep. Grevillea, Sept. 1892, p. 28.

G. MASSEE.

'Yorkshire.'

New or Rare Lichens [described, including *Lecanora pollinii* (Massal.), Yorkshire (Leighton Herb., Kew)]. Grevillea, Dec. 1892, p. 60.

ABRAHAM SHACKLETON.

York S.W. or Mid W.

Disappearance of Yorkshire Plants [including *Pertusaria leioplaca*, which formerly occurred in three different stations near Keighley, but is now extinct]. Nat., March 1891, p. 80.

July 1895.

ABRAHAM SHACKLETON and THOMAS HEBDEN. York Mid W.
New British Lichens [being descriptions by Dr. W. Nylander of seven species of *Verrucaria* and one of *Lecidea* (*Biatora*), all from Malham, Gordale, Cullingworth, Malsis, Crosshills, or Braithwaite, Keighley]. *Nat.*, Jan. 1892, p. 17.

ABRAHAM SHACKLETON and THOMAS HEBDEN. York Mid W., S.W.
Additions to the Lichen Flora of the West Riding of Yorkshire [being a list of 172 species, of which 120 are new to the West Yorkshire list]. *Nat.*, June 1893, pp. 165-171; reviewed in *Grevillea*, Sept. 1893, p. 11.

I. C. THOMPSON. Lanc. S.
Microscopic Life in Hailstones [spores of cryptogamia, especially lichens, but not identified specifically]. *Sci. Goss.*, July 1889, p. 163.

W. H. WILKINSON. Isle of Man.
Lichens of the Isle of Man—collected in September, 1892 [enumerating, with stations and habitats, and brief descriptions, and figures of spores, 50 species and 10 varieties]. *Midl. Nat.*, Nov. and Dec. 1893, pp. 245-8 and 272-6; briefly reviewed in *Grevillea*, Dec. 1893, p. 60; *Grevillea*, June 1894, pp. 115-116; and by A. G. in *J. of Bot.*, Aug. 1894, p. 252.

NOTES—ORNITHOLOGY.

Raven and Peregrine Nesting in Westmorland.—I am glad to say that some friends of mine who took three eggs out of a Peregrine Falcon (*Falco peregrinus*)'s nest not far from Murton Pike, failed to take a Raven's nest in the same locality. They saw five Ravens (*Corvus corax*). Long may they remain! —R. E. LEACH, The Grammar School, Appleby, Westmorland, May 7th, 1895.

Occurrence of the Greenshank and Nesting of Woodcock in the Washburn Valley.—At least one nest of Woodcocks (*Scolopax rusticola*) have been safely reared in the valley of the Washburn this spring, not far from Lindley Wood. The keeper found the nest, and saw the young safely hatched. The same keeper also shot a specimen of the Greenshank (*Totanus glottis*) during last Autumn.—R. FORTUNE, Learoyd House, Harrogate, June 12th, 1895.

Redstarts in Lakeland.—The early part of Spring was backward with us this year, and the first migrants were a little behind time. Yet, while a general immigration of the Redstart (*Ruticilla phoenicurus*) was not apparent before the 20th to 22nd of April, I met with the bird on the 11th,—a usual date for its first appearance—but it was then keeping so closely in ambush that I should most certainly have missed it but for the attention of other birds to it, and for its own species' jealousy. There were, in fact, two males together, playing about the bushes of a warm slope of scree, above a walled wood. Whether feeding or at rest, they moved constantly with reference to each other, eyeing one another consciously, following and hopping near; finally they would close in, and circle in a chase about the bushes, the bright sunshine playing gloriously through their fanned tails. On alighting, some strident heated sounds came from them. It was a beautiful sight, and one I had never seen so early; for it is very usual to see males in conflict in this country, where Redstarts positively abound (a fact not generally recognised, I think), but then it is in early May, when hens are in request, and courtship in full swing. This early rivalry, therefore, before any hen (I suppose) could be here, surprised me. Was it only a contest of vanity, or jealousy about nesting ground? The Redstart is a highly self-conscious bird, and a jealous one—a temper that may be connected with his lovely plumage; but for either passion to break out against (I presume) a fellow-traveller so soon after arrival, surely marks an access of it. I would like to know more of the migration of the Redstart. Are there any of our readers nearer the gateways of migration, who have experience of it? Whether it travels in large bands, or but two or three together? Here, near the stream sources in the mountains—up which no doubt it moves—it is seen first singly at scattered stations. The instance I have recorded, and another from my brother-in-law's note-book for April 10th, 1885, when he saw two Redstarts whirling after each other, are the only cases I know of in which male Redstarts have been seen in company.—MARY L. ARMITT, Eden Vale, Ambleside, June 13th, 1895.

A LOWLAND SAND-LOVING GENTIAN.

F. ARNOLD LEES, M.R.C.S.

Gentiana baltica Murbeck (in 'Acta Horti Bergiani,' II., No. 3. Stockholm, 1892). This new item (No. 1098) in Lond. Cat. 9th edn. (1895), in absence of any reference to a diagnosis, and being found neither in part 2 of 'Index Kewensis' nor in any Englished manual, is likely to prove a dead wall, if not a stone over which to stumble, to many of us. The average botanist does not 'take' the 'Journal of Botany,' and the more thorough one who does will gather with slow surprise that plate 237 of 'English Botany' figuring the usual *G. campestris* of Britain (from a specimen gathered in 1792 at Bury St. Edmunds) is quoted as the form answering to the Swedish splitter's new appellation! The Journal referred to in its issue for January, 1894, in a paper by Mr. W. H. Beeby reviewing Herr Murbeck's study of the Endotrichian group of Gentians in the Transactions of 1892 (see above), furnishes the key to this lock hardly pickable by the general: from that article most of what follows is compiled and correlated, solely with intent to assist Yorkshire observers in arranging and rightly referring what they may collect this harvest on our uplands and sea-banks. There are forms about Brimham, Pateley, Hornsea, Coatham Sand-hills, Malham, and Halifax, on sand as well as limestone, which, as much as any mandrake ever did, 'cry aloud' for expert recognition.

Without going into the vexed question of the 'species' and 'sub-species,' let alone 'variety,' 'form,' or 'state,' Herr Murbeck divides the ciliate-throated Gentians, with which we are concerned, into two groups, the annual and biennial, two titles, *baltica* Murb. and *uliginosa* Willd., being thrown under the unicycle; and four others, *germanica* Murb. (not the 1096 of Lond. Cat.), *suecica* Murb., *axillaris* Murb., and *lingulata* Agh., under the new bicycle; for a reference to Hooker or Babington will show that hitherto the Linnean species *G. Amarella* and *G. campestris*—names yet kept up in the catalogue—have ranked as annuals, although, as with the Ribbleshead *Arenaria gothica*, individuals have often been observed surviving the winter and completing their cycle the succeeding year. Suggestive and strange it is that the lowland sand forms should be the annual, and with us the high moor and crag-inhabiting ones the longer lived; when, as a general law, annuals under vicissitudes tend to have prolonged existences in the absence of inimical climatic

circumstances. In this division, be it understood, our aggregate names '*campestris*' and *Amarella* disappear as specific cognomina; '*campestris*' becoming in part *baltica* (the annual lowland form), and in part *germanica* Murb. (which stands for the usual British plant); and in part *suecica*, this attenuate yet still biennial plant being as yet only known from the Shetland Isles, I believe. Then, the '*Amarella*' type of plant, with five-partite calyx is divided into *axillaris* Murb. (the name standing for the ordinary British *Amarella* of the chalk and limestone), and *lingulata* Agh. (= *præcox*, Raf. 1095b of Lond. Cat.), which is an early flowering form and, as one would expect, dwarfish with abbreviated internodes, hitherto not very certainly known away from the bare chalk downs of the South, although the early-flowering Pontefract and Carperby *Amarella* will probably prove the same. This leaves only one other unaccounted for: the Annual *uliginosa* of Willdenow, with a variably-cleft calyx and corolla, not confined to limestone, rather preferring damp, stony, moory ground, and which occurs not only in Scotland but about Halifax in Yorkshire (Flo. W. Yorks., p. 326), having a distinct facies of its own suggestive of disease or growth under difficulties. I will not here express more than a passing doubt as to the right of *Gentiana baltica* to be considered a distinct species of equal value to the aggregate Linnæan types; yet it is a fact that many plants, like the turnip and the henbane, are both of annual and biennial duration, flowering the first year (late on as annuals which germinate in spring) and subsequent years; and these forms differ in many less essential characters quite as much and as permanently from each other as *Gentiana baltica* does from *G. campestris*, or *G. uliginosa* and *G. lingulata* from *G. Amarella*. Further, the parallelism between the forms of the respective groups seems a circumstance suspiciously suggestive of the specific identity of each group; i.e., that the biennial *G. Amarella* should have in *G. uliginosa* and perhaps *lingulata* (*præcox*) forms homologous with the *baltica* and perhaps *suecica* variants of *G. campestris*. It is, however, not easy for a visitor gathering the *uliginosa* or *suecica* late in summer, in a high latitude on a sandy barren by the sea, to ascertain for certain whether or not it is there an annual, and dogmatise as to the impossibility of the same thing being usually biennial on a down in Dorset, Devon, or Cornwall. Herr Murbeck asserts that he has found them retain the characters he defines them by, under cultivation between 1888 and 1892. As long ago as 1774 (see Smith's 'Eng. Flora,' vol. 2, p. 31) a dwarf variety of the then-considered annual *G. Amarella* 'which had survived the winter' was found on a heath between Grantham and Ancaster—the earliest record of *lingulata* (*præcox*) for Lincolnshire.

For convenience I here copy Herr Murbeck's distinctive points from Mr. Beeby's exposition of them ; the arrangement and some unimportant amplifications being mine own.

A. Calyx 4-partite, unequal, the 2 larger ovate sepals enwrapping the smaller.

(*GENTIANA CAMPESTRIS* Angl. Auct.)

1. ***Gentiana *germanica*** Murb. (not Willd.). Biennial, basal leaves rosetted (first and second year) spatulate, broadest above middle, towards the tip. Tube of corolla mostly longer than sepals. Internodes about the length of the leaves. Mid and upper stem leaves lanceolate, more or less acute ; middle and higher spreading, more strongly upwards. In flower end July to Sept. This is the usual British form, hitherto called *campestris*.
 2. ***Gentiana *suecica*** Murb. Biennial, rosetted spatulate leaves as in preceding. Corolla-tube rarely shorter than sepals. Internodes usually much longer than leaves. Mid and higher stem leaves strap-shaped oblong, obtuse, middle erect or inclined upwards. Flowers mid-June to August (high latitudes). Mr. Beeby gathered plants at Balta Sound, Shetland, with simple one-flowered stems, and a form approaching this in the distant pairs of leaves. The Redcar sandhill plant has the like, and may be this, if not *baltica*.
 3. ***Gentiana baltica*** Murb. Annual. 'Basal leaves few, ovate or lanceolate, broadest below or at the middle' (no spatulating or strap-shaping). Corolla tube mostly 'shorter than the calyx, rarely longer.' (This lack of definiteness is disquieting.) Flowering mid-August to October. Most annuals necessarily flower rather later than their perennial allies. Distribution of specimens seen by Herr Murbeck :—Lizard Downs, West Cornwall ; Roborough Down, South Devon ; Suffolk, Bury St. Edmunds (First E.B., plate 237) ; Norfolk East, St. Faiths, Newton ; Caernarvon, Tremlyd Point ; and vice county 110 Outer Hebrides, on the information of Mr. Whitwell. Nothing is definitely stated as to relative internodal space in Mr. Beeby's paper, and I have not seen their specimens, but in what of my own I take to be *baltica* they range from the normal of *campestris* (about length of leaves) to appreciably shorter, the facies being that of a dwarfish, rather sturdy plant.
- B. Calyx 5 (only monstrously 4)-partite, segments subequal, linear-lanceolate, not overlapping (*GENTIANA AMARELLA* Angl. Auct.).
4. ***Gentiana *axillaris*** Murb. Biennial, basal leaves rosetting first and flowering years, spatulate to ligulate, broadest above middle, subacute. Corolla tube mostly longer than calyx,

‘rarely shorter.’ Middle and lower internodal spaces variable—‘shorter than or slightly longer than their leaves.’ Stem-leaves ovate-lanceolate to lanceolate, and more acute upwards; middle ones usually spreading, upper horizontally patent. Flowering from late in July through September. Eng. Bot., plate 236—corresponding to the usual *Amarella* of our calcareous soils. There are many forms hardly worthy of a name, such as the simple, unbranched, yellowish-white flowered starved states of the bare limestone crags, and a much branched form (*multicaulis* Lange) found in Shetland by Mr. Beeby, which has the corolla lobes erect and brownish externally.

5. **Gentiana *lingulata** C. A. Agardh. Biennial, and type-species characters as in *axillaris*, save that the rosette leaves are blunter. Middle internodes elongated, exceeding their leaves. Mid and upper stem-leaves oblong, rounded or obtuse at tip, middle ones not distinctly spreading, flowers from mid June to July end, later further north. Mr. Beeby says this is known in Britain only as our var. *præcox* Raf. (1095 b. Lond. Cat.), referred by Herr Murbeck to his sub-specific *lingulata*. With us this *præcox* is often in bloom on the chalk downs of Dorset, Wight Isle, and Surrey by mid May. Though usually so, it is not invariably a dwarfer plant with few and short internodes: some seasons it spindles up quickly and has long middle internodal spaces. It seems to me more than probable that (as Mr. Beeby suggests) it is only a state of the Agardhian plant, and that only a variety at best of the type *Amarella*. *G. præcox* is a Yorkshire plant, with a clear preference for the cause of its being—some forcing, climatic influence gained by proximity to the sea; humid air, lack of shade and absence of competition, possibly.
6. **Gentiana uliginosa** Willd. Annual—the homologue in this section of *baltica* in the preceding. Not rosetting, basal leaves few, ovate to lanceolate, broadest below the middle. Corolla tube equalling the calyx. Internodal spaces exceeding the leaves. A drawn-up plant, not branching greatly, with a wiry angled stem, smaller brighter-pigmented corollas, calycine segments five, but often unequal, one a mere awl-shaped rib. Flowering from mid August to October. Wet stony places, usually at some elevation. Nyman vouches for it as a Scottish plant; I consider the Halifax and Delph stations belong to this also; but until these matters were quite cleared up, I think it would have been as great a mistake to include *G. uliginosa*, as it is to give number and specific rank to *G. baltica* in the 5th edn. of the new London Catalogue.

THE YORKSHIRE AND LINCOLNSHIRE NATURALISTS' UNIONS AT BROUGHTON WOOD & TWIGMOOR GULLERY.

THE first joint meeting of these Unions was held in the neighbourhood of Brigg, North Lincolnshire, on Whit-Monday, June 3rd, to explore the neighbouring woods and commons. The weather (which had been lovely for some weeks) broke up the Friday before the expedition, and the morning proved a drizzling rain till ten o'clock, when the wet clouds cleared off, and the rest of the day remained



EXPLANATION.—The Map is divided into square miles by horizontal and perpendicular lines.

fine. About sixty representative members of the two Unions arrived at Brigg, and left the Angel Hotel for Twigmoor Gullery in wagonettes at ten o'clock.

August 1895.

The ground was not very interesting for geologists, as for the most part it is covered with post-glacial and recent deposits. Brigg, east of the Ancholme, stands on Oxford Clay, but it is entirely covered by a glacial gravel of well-worn flints associated with sand. On the west of the river Ancholme peat and alluvium, in layers of varying thickness, stretch north and south up and down the valley on both sides of the river for miles, with embedded forests of oak, yew, and hazel, and Mr. A. Atkinson, of Brigg, a keen observer and authority on this drainage level, adds the silver birch (*Betula verrucosa* Ehrh.). The fir is not present or very rare indeed here, though found plentifully in our other Lincolnshire Carrs and Fens. Immediately after crossing the second bridge from Brigg, over the new river, and passing the Yarborough Mill, boulder clay, full of chalk fragments, appears for half a furlong. This in turn is succeeded by two or three furlongs of Hibaldstow Beds of the Inferior Oolite, which would be more properly called Ponton Beds if the characteristic fossiliferous Ponton Oolite could be identified; but it cannot, though this bed is rich in fossils. Then the Kirton beds, rich in fossils, and with small fragments of wood and traces of plants which have not been identified, stretch out for a wide distance. Broughton Lane Plantation—the best ground in the neighbourhood for conchologists hunting for living specimens—stands on this formation, with the exception of Bracken Hill, where the Broughton and Scawby Road crosses the Brigg and Manby Road, which is a capping mass of Hibaldstow Beds. After crossing the Roman Road—Ermine Street—blown sand covers the whole district with the exception of a little Glacial Gravel just above the cliff escarpment. This is followed on the hill side by the Lower Estuarine beds of the Inferior Oolite. North of the road and east of Manby Hall, but west of the escarpment, we have the successive out-cropping, above the blown sand, of the clay and shale of the Upper Lias; the Marlstone and Pecten bed (Ironstone) of the Middle Lias, followed lastly by the clays of the Lower Lias with Frodingham Ironstone—a magnificently rich fossiliferous bed. Ironstone was worked in prehistoric times at Manton and Twigmoor; and the remains of these old smeltings were seen on Manton Common exposed in rabbit burrows, for like everything else the half-smelted refuse, which lies piled in large heaps, has been covered by blown sand. The road at the hill foot to the Gull Ponds was repaired with these old scoriæ within the last thirty years. The drier parts of this common have rewarded the diligent collector with some lovely barbed arrow-heads of neolithic workmanship; and after every high and dry wind masses of flint chippings are exposed. Mr. J. Cordeaux was lucky enough

to find a handful—chiefly so-called knives and finely chipped arrow heads.

The Gull ponds proved a most attractive sight, well worth coming a long distance to see. 'Thousands of birds in adult and first year's plumage circled round in the air uttering their hoarse cries of distress as the visitors picked their way among the nests and young. The ponds, which taken together cover some acres of ground, have been their breeding-place for over forty years; before which they nested on Manton Common, close by, in 'flashes' in the sand hollows, now drained for agricultural purposes. At one time the eggs were regularly taken and sold, but since the Wild Bird



A VIEW IN TWIGMOOR GULLERY.

Protection Act they have been strictly preserved; and though the present season has been one of the worst known have increased amazingly. Offshoots have already taken up fresh breeding-grounds in the Duck Pond on Scotton Common, and in the Sheldrake Pond on Crossby Warren. When the ponds are quiet the Heron, Mallard, Teal, Shoveller, Sheldrake, and Snipe may be observed through a field-glass to follow their usual avocations in close proximity; and twenty-five years ago large Pike, taken from the Gull Ponds by Herons, but too large for consumption, might be found in the woods. I have seen the dead Pike, all weighing about four pounds I should judge, but I only have their mode of capture on the

authority of the then keeper. Personally, I never saw Herons tackle such large fish. Our picture gives a characteristic view of the ponds with the Gulls standing on the branches of a dead tree. We are indebted to the kindness of Mr. Frederick Boyes, of Beverley, for leave to reproduce this view from a negative taken by Mr. Johnson C. Swailes, of the same town.

After seeing the birds the large party broke up into sections for field work, Mr. John Beaulah, of Raventhorpe, leading the conchologists to the most productive ground; Mr. Charles S. Holgate, of Low Risby, the entomologists; Mr. F. M. Burton, the geologists; Mr. John Cordeaux, the vertebrate zoologists; and the Lincolnshire Secretary the botanists.

Mr. John Cordeaux, M.B.O.U., on behalf of the Vertebrate Section, writes:—From the fact that the members of the two Unions were not allowed to visit the most favourable localities for seeing the rarer birds and wild fowl, very few species were observed during the day. The visit to the gullery at Twigmoor afforded much pleasure to the assembled naturalists. Immense numbers of the Black-headed Gull were found nesting around the ponds, and these on the approach of the visitors rose in one vast flock, the winnowings of thousands of wings together resembling the sound of many waters or the distant roar of a waterfall. When alighting hundreds perched for the time on the neighbouring trees. Most of the eggs were in an advanced stage of incubation—in some nests the tiny down-clad chicks had only just emerged from the egg. Numbers of young, from a day or two to a fortnight old, were wandering in groups along the margin of the pond or afloat on the water. On the chief pond were some Coots and Waterhen, but no Sheldrake were seen, although several pairs were nesting in the neighbourhood. On Manton Common several Wheatears were seen, also a few Stockdoves and some thievish Daws; these latter, like the Stockdove and Wheatear, also nesting in the rabbit burrows. During the day, but chiefly in the Manby Woods, the Nightingale, Garden Warbler, Blackcap, Redstart, Wood Wren, Willow Wren, Chiffchaff, Common and Lesser Whitethroats were seen or heard.

The Appleby, Broughton, Manton, Raventhorpe, Scawby, and Twigmoor woods, commons, ponds, 'flashes,' bogs, 'damp spots,' and ditches are, when the number and rarity of some of the species are taken into account, the richest botanical ground in Lincolnshire; and have been the happy hunting-ground of botanists for over a hundred years. The following is a concise list of the rare species to be found on the ground west of Brigg figured in our map, and of which proof specimens are in the British Museum or Lincolnshire

County Herbarium. It owes its fulness to the Rev. W. Fowler's careful study and many good finds. Those species marked with an asterisk were observed or taken by members of the Unions.

Anemone Pulsatilla, **Aquilegia*, a lovely sight; *Cardamine flexuosa*, **Viola palustris*, **V. hirta*, **V. Reichenbachiana* Bor., **V. Riviniana*, and the hybrid of this with *ericetorum* Schrader; *Saponaria officinalis*, *Silene noctiflora*, *Stellaria nemorum*, very rare; *Hypericum montanum*, on the out-crop of the Hibaldstow beds of the Inferior Oolite; *Geranium sanguineum*, **Erodium cicutarium* and its variety **chærophyllum*, **Oxalis Acetosella*, **Rhamnus catharticus*, **Genista anglica*, **Astragalus Hypoglottis*, **A. glycyphyllus*, *Hippocrepis comosa*, *Prunus fruticans*, i.e. *macrocarpa* Wallr., *Rubus suberectus*, **R. saxatilis*, *Sedum Rhodiola*, *S. Telephium*, *Drosera*, all three species were found on Manton Common before it was drained—they are extinct now, I fear; *Lythrum Salicaria*, *Myrrhis odorata*, *Selinum Carvifolia* (the Rev. W. Fowler, of Liversedge, added this species to the British Flora from a spot in Broughton Wood, where it is native), *Asperula cynanchica*, **Valeriana Mikanii*, **V. sambucifolia*, *Solidago Virgaurea*, *Erigeron acre*, *Antennaria dioica*, *Carlina vulgaris*, *Serratula tinctoria*, *Lactuca muralis*, very rare excepting here, *Campanula glomerata*, *C. Trachelium*, *C. latifolia* and the hybrid *latifolia* × *trachelium*; *Primula acaulis* Jacq., with rudimentary scape, *P. vulgaris* × *veris* (sometimes this hybrid is found with true *vulgaris* and *vulgaris* × *veris* on one root), **Lysimachia nemorum*, *Anagallis pallida*, *A. tenella*, extinct? *Gentiana Pneumonanthe*, extinct? *Polemonium cæruleum*, **Cynoglossum officinale*, **Myosotis collina*, **Lithospermum officinale*, **L. arvense*, *Hyoscyamus*, *Veronica montana*, in wet places in the woods; *Melampyrum pratense*, **Pinguicula vulgaris*, very rare now on Manton Common; *Origanum vulgare* and *flore-albo*; *Galeopsis ochroleuca*, a colonist; *Teucrium Chamædrys*, denizen, perhaps extinct during the last two years, **Myrica Gale*, *Ophrys apifera*, **O. muscifera*, confined to the outcrop of the Limestone and therefore rare, *Habenaria conopsea*, **H. chloroleuca*, **Convallaria magalis*, by millions; it is said there are 400 acres of them in these woods; **Allium oleraceum*, *Ornithogalum umbellatum*, an outcast, **Paris*, **Luzula pilosa*, **Eleocharis palustris*, *Scirpus Caricis*, *Eriophorum angustifolium*, *Rhynchospora alba*, *Cladium germanicum*, *Carex pulicaris*, *C. ligerica*, very rare indeed; another **Carex* was taken by Mr. C. Waterfall, of which Mr. Arthur Bennett writes:—‘Your plant is hardly *C. disticha* Huds., and I think may be *C. pseudo-brizoides* Clavaud = *C. reichenbachii* Bonnet ex Clav. I have not seen an authentic specimen, and hence cannot be sure of the name’; **C. echinata* *C. acuta*, **C. pilulifera*, *C. pallescens*,

C. fulva, **C. lepidocarpa*, **C. rostrata*, *C. vesicaria*, *Calamagrostis epigeios*, **Lastræa Thelypteris*, *Osmunda* — extinct? **Botrychium lunaria*, *Selaginella selaginoides*. About 190 species were observed in all. Valuable lists were received from Messrs. C. Waterfall and J. H. Rowntree.

Mr. F. W. Fierke reports :—The Conchological section was represented by Mr. John Beulah (Raventhorpe), Mr. W. Denison Roebuck, F.L.S., and the Hon. Sec., Mr. F. W. Fierke (Hull). The conchologists had on this occasion the advantage of the experience and knowledge of a local collector, Mr. John Beulah, who has resided in the district for many years and intelligently studied the natural objects around him, more especially the mollusca. After inspection of the Gull ponds Mr. Beulah conducted his party through High Wood, Scawby Park, and Burton Lane Plantation, which comprised the route selected for conchological investigation. It was somewhat disappointing that notwithstanding the rain in the morning there was a paucity of molluscan life in the woods. The vegetation in the Burton Lane Plantation was said usually to be very productive of *Vertigo edentula*, but during the whole of the time only one fully developed specimen was promiscuously secured by Mr. Roebuck. *Clausilia laminata* was fairly abundant and diligent search was made for *Helix lapicida*, which Mr. Beulah had known to occur years ago near some ash trees, but the conchologists did not on this occasion succeed in recording it. Molluscs are at all times and places liable to an unaccountable fit of perverseness and although a locality may prove prolific at one time search for them on a subsequent occasion may be absolutely futile. A later date, too, would no doubt, have been more favourable, but at any rate the conchologists were fully convinced from what they saw of the character of the district traversed and Mr. Beulah's glowing descriptions that things were not what they seemed. As it was, such thorough-going woodland species as *Hyalinia fulva* and *Helix aculeata* were by no means of infrequent occurrence and in the sand-pit near Scawby Park var. *alba* of *Helix rotundata* was quite plentiful. In Scawby Pond a search was made for *Dreissena polymorpha*, which Mr. Beulah informed the party was introduced there some years ago from the Ancholme, but no trace of it could be found. It is not improbable the conditions there would interfere with its favourable propagation, as it is essentially a river species. A valve of *Unio pictorum* was found in the pond. The return journey was made by the aforesaid Burton Lane Plantation which has every appearance of being very promising ground for investigation and, at the appointed time, Mr. Beulah's party, reinforced by another contingent, were

patiently waiting on the high road to be eventually picked up by the Winterton express (?) and conveyed to the Angel Hotel, Brigg, there to resuscitate their energies around the festive board. The result of the day's operations for this section is comprised in the following list:—*Arion hortensis* and var. *subfusca*, *A. circumscriptus*, *Limax maximus*, *Agriolimax agrestis*, *A. lævis*, *Vitrina pellucida*, *Hyalinia cellaria*, *H. nitidula*, *H. pura*, *H. fulva*, *H. rotundata* and var. *alba*, *H. aculeata*, *H. pulchella*, *H. nemoralis*, *H. arbustorum*, *H. rufescens*, *H. hispida*, *Buliminus obscurus*, *Vertigo edentula*, *Clausilia perversa*, *C. laminata*, *Cochlicopa lubrica*, *Carychium minimum*, *Planorbis albus*, *P. carinatus*, *Limnæa peregra*, *Velletia lacustris*, *Bythinia tentaculata*, *Valvata piscinalis*, *Unio pictorum*, *Sphærium corneum*, and *S. lacustre*.

For the Entomological Section Mr. A. E. Hall, F.E.S., reported that the following species of Macro-Lepidoptera had been noted:—*Pieris rapæ*, *P. napi*, *Anthocharis cardamines*, *Argynnis euphrosyne*, *Vanessa urticæ*, *Chortobius pamphilus*, *Polyommatus phlæas*; *Euchelia jacobææ* very abundant, *Chelonia plantaginis*, *Arctia menthastri*, *Corycia temerata*, *Fidonia atomaria*, *F. piniaria*, *Thera variata*, *Melanippe montanata*, *M. fluctuata*, *Cidaria corylata*, *Anaitis plagiata*, *Platypteryx falcula*, *Dicranura vinula*, *Acronycta psi*, *A. menyanthidis*, *Xylophasia rurea*. All the usual spring larvæ were numerous, amongst which were noticed those of *Ennomos elinguaris*, *Tæniocampa cruda*, *Epunda viminalis* (abundant), *Agriopsis aprilina*, and *Halias prasinana*. The locality appears to be a very prolific one, and would well repay working, as it is so varied. The short time at disposal of course rendered the record much smaller than might have been.

The Rev. C. D. Ash, B.A., writes on the Micro-Lepidoptera that the following is a complete list of species noted during the day:—

Scopula lutealis (larva).
Crambus pratellus.
Halias prasinana.
Tortrix viridana (larva).
Tortrix ministrana.
Dictyopteryx forskaleana.
Coccyx hyrciniana.
Catoptria albersana.

Adela viridella.
Gelechia diffinis.
Glyphipteryx fusco-viridella.
Gracillaria swederella.
Gracillaria syringella.
Coleophora gryphipennella.
Tischeria complanella.

There were other *Tortrix* larvæ the identity of which is not certain.

The Rev. A. Thornley, M.A., F.L.S., reports on the Coleoptera: The dull day and wet undergrowth were not favourable to entomologists, nevertheless about 70 species of coleoptera were collected, some of them of interest. Seven specimens of *Silpha thoracica* were beaten out of dead moles. *Omius mollinus* and *Platytarsus echinatus* were good finds by sweeping on the Bigby road. These and many

other species show that the district should be a good one for the coleopterist. The following is as complete a list as could be got together, though I should have liked to have known what others obtained :—

Bembidium femoratum.
 Agabus didymus.
 Ilybius fuliginosus.
 Ilybius fenestratus.
 Dermestes murinus.
 Omosita discoidea.
 Omosita colon.
 Nitidula bipustulata.
 Necrophorus mortuorum.
 Necrophorus vespillo.
 Necrophorus humator.
 Silpha rugosa.
 Silpha thoracica.
 Anaëtis ocellata.
 Halyzia 14-guttata.
 Coccinella variabilis.
 Adalia oblitterata.
 Adalia bipustulata.
 Saprinus nitidulus.
 Hister cadaverinus.
 Epurea deleta.
 Epurea æstiva.
 Byturus sambuci.
 Telephorus rusticus.
 Telephorus lividus.
 Telephorus nigricans and var.
 dispar.
 Telephorus pellucidus.
 Telephorus bicolor.
 Telephorus hæmorrhoidalis.
 Telephorus lituratus.
 Telephorus bicolor.
 Ragonycha limbata.
 Ragonycha pallida.
 Malthodes marginatus.
 Aphodius pusillus.
 Aphodius erraticus.

Melolontha vulgaris.
 Corymbites cupreus.
 Corymbites holosericeus.
 Corymbites quercus and var.
 ochropterus.
 Athöus hæmorrhoidalis.
 Sericosomus brunneus.
 Dolopius marginatus.
 Agriotes sputator.
 Otiorhynchus tenebricosus.
 Otiorhynchus picipes.
 Otiorhynchus ovatus.
 Omias mollinus.
 Platytarsus echinatus.
 Atactogenus exaratus.
 Phyllobius alneti.
 Phyllobius maculicornis.
 Phyllobius argentatus.
 Phyllobius pyri.
 Phyllobius oblongus.
 Phyllobius uniformis.
 Polydrusus cervinus.
 Strophosomus coryli.
 Liophleus nebulosus.
 Attelabus curculionoides.
 Cionus scrophulariæ.
 Hypera suspiciosa.
 Ceuthorhynchus litura.
 Cœliodes quadrimaculatus.
 Aleochara fuscipes.
 Philonthus æneus.
 Deporaus betulæ.
 Luperus betulinus.
 Luperus flavipes.
 Anaspis frontalis.
 Anaspis melanopa.
 Anaspis geoffroyi.

Mr. Charles Crossland writes :—The mycologists joined and kept with the general botanists. Fungi were very scarce, not more than 3 Agarics, 2 Polyporid, 1 Uredinid, and 3 Discomycetes were collected. It is a splendid district for mycology, and no doubt at the proper time of the year the ground gone over will be very prolific in fungi and afford a rich harvest to the mycological student. The names of those gathered (mostly common ones) are as follow :—
Collybia butyraceus Bull., *Stropharia semiglobatus* Batsch, *Marasmius*

oreades Fr., the latter a very good edible species; *Polyporus sulphureus* Fr., *Polyporus squamosus* Fr., *Triphragmium ulmariae* (Schum), *Mollisia cinerea* (Batsch), *Lachnella calycina* (Schum.), *Lachnella virginia* (Batsch). *L. calycina* grows on larch and pine trees, and is very destructive in its action. Mr. Crow brought with him from Louth a fine specimen of *Panus rudis*, which had been submitted to Mr. Masee, Kew, who pronounced it new to Britain.

Mr. Chas. Crossland also says of a specimen taken in Broughton Decoy, a few days before the Brigg meeting:—‘I have examined the specimen sent and make it out to be *Mycena acicula* Schæff. There is another somewhat similar to it—*Collybia clavus*—but I am inclined to think, so far as I can judge it in its dry state, it is the former.’

Mr. W. C. Brown, of Appleby, a scientific farmer of the modern school, reported the discovery of a Myxomycete called *Spongiospora Solani* on potatoes grown on the Cornbrash, of the Great Oolite series, and, as far as his experience goes, limited to that soil and parish. It is nearly related to the fungus which causes the finger-and-toe disease in the turnip. Professor Carruthers named it, and had not previously seen it in England. He is making experiments with diseased potatoes at present. Mr. Brown also took *Volvox globator* in a pond on Manton Common. If any other observations were made in Micro-Zoology or in Muscineæ, Algæ, Mycetozoa, and Protophyta, will members of the Unions kindly send their notes to Mr. J. Larder, 33, Mercer Row, Louth.

A good ‘high tea’ finished up the day at the Angel Hotel, at Brigg, with the usual sectional reports, and ‘speechifying’ befitting such an auspicious event as the first joint meeting of the two Unions.

The thanks of both Unions are due to Lord Yarborough, Mr. R. N. Sutton-Nelthorpe, Mr. Max H. Dalison, Major Spencer Chichester, and Mr. J. R. Dudding for freely opening their valuable shooting properties, and lending their keepers to act as guides.

E. ADRIAN WOODRUFFE-PEACOCK.

NOTES AND NEWS.

From Mr. Thomas Hick, B.A., B.Sc., A.L.S., of the Owens College, we have had the pleasure of receiving reprints of two papers from the publications of the Manchester Literary and Philosophical Society for 1894-95. One is ‘On the Structure of the Leaves of *Calamites*,’ in which are discussed slides of Yorkshire and Lancashire specimens, the object being to bridge over the gap caused by want of knowledge of the histology of calamitean leaves. The other paper is ‘On *Kaloxylon Hookeri*, Will., and *Lyginodendron Oldhamium*, Will.,’ in which Prof. Williamson’s observations are discussed.

NOTES—ORNITHOLOGY.

Red-legged Partridge near Huddersfield.—I have just had made into a skin a Red-legged or French Partridge (*Caccabis rufa* L.) which was caught alive in Dale St., Longwood, on the 30th April, rather an out of way place for Partridges of any sort.—JOHNSON WILKINSON, Huddersfield, July 5th, 1895.

Great Skua at Scarborough.—I saw yesterday a very fine specimen of the Great Skua (*Stercorarius catarractes*) which was killed off Scarborough in November last. I think both these birds are worth recording.—JOHNSON WILKINSON, Huddersfield, July 5th, 1895.

Range of the Nightjar and Buzzard in the Lake District.—Being at Grange in Borrowdale a few weeks ago (May 26th, 1895) spending the night, I took the opportunity to go out when all was quiet and make observations. It was a great pleasure to me to hear for the first time in Lakeland the familiar notes of the Night-jar (*Caprimulgus europæus* L.). Having lived for some years in Cumberland, and never heard this bird before I began to enquire into its distribution. Mr. J. W. Robinson, of Whinell Hall, says it does not occur in the Vale of Lorton. It used to be heard at Brigham Hill (Cockermouth), but I cannot find that it has been observed of recent years. In 'A Short Account of Wigton School,' published privately in 1892, it is stated (p. 14) that 'the nest of the Night-jar was once found with two eggs.' I believe specimens of birds are to be found in the Tullie House Collection, Carlisle, which were obtained in this part of the county years ago by Mr. Fletcher.

In the work just quoted (p. 15), it is stated that the Common Buzzard still nests on Skiddaw, 'as until recent years did also the Raven and Peregrine Falcon.' Climbing Hobcarten on July 1st we saw an unfinished nest of the Buzzard (*Buteo vulgaris* Leach) of last year's building (1894), which, for some reason or other, had been forsaken. Had the persecuting gun of the gamekeeper brought the bird down, as it has done the bulk of the Ravens and many other interesting and beautiful creatures? I am glad to learn from Mr. Robinson that he knows the nest of a Kestrel (*Falco tinnunculus*) a few miles from Keswick, where also the Peregrine Falcon (*F. peregrinus*) still occurs. I am told, too, that though the Jay (*Garrulus glandarius*) is almost extinct in many parts of Cumberland, it is still seen at times in the vale of Lorton.—HILDERIC FRIEND, 7, Fern Bank, Cockermouth, July 2nd, 1895.

NOTES—BOTANY.

Turritis glabra, etc., in the Lake District.—On June 9th, 1895, shortly after crossing the Derwent at Isel Bridge, three miles from Cockermouth, Cumberland, I came across a number of specimens of the Smooth Towercress (*Turritis glabra* L.). It was formerly reported from Stainburn near Workington, where it is now extinct. I have found it among aliens at Silloth, but Isel Bridge now stands as the only known Cumberland habitat. It was evidently indigenous. I climbed Hobcarten on July 1st with some friends and obtained specimens of *Lychnis alpina*, in the old station. At the foot of the Fell the Dwarf Elder (*Sambucus ebulus* L.) was in a most luxurious condition by the side of Hopebeck Farm.—HILDERIC FRIEND, 7, Fern Bank, Cockermouth, July 2nd, 1895.

Botanical Notes from Hebden Bridge.—On Saturday, June 8th, the Mycological members of the Botanical Section of the Yorkshire Naturalists' Union had a very pleasant excursion to Hebden Bridge. The only Agaric found was *Mycena galericulata*, but several microscopic fungi were met with, of which Mr. Crossland has prepared an account. Of Mosses, in addition to *Sphagnum subsecundum*, *Mnium punctatum*, and *Philonotis fontana*, barren, was found *P. calcarea*, male and female. Of Hepatics, *Scapania undulata* Dill. was the only one observed. *Milium effusum* was in fine form in the damp parts of the wood, and one plant of *Carex strigosa*, was met with, which does not seem to have been previously reported for that station, though it has been reported for 'Turner Clough,' Ripponden. Mr. Lees, however, adds 'The species there is *C. pendula*!' Perhaps the Halifax naturalists will clear up this point?—WILLIAM FOWLER, Liversedge, June 28th, 1895.

FURTHER REMARKS ANENT THE NEW LONDON CATALOGUE OF PLANTS.

My friend Mr. Peacock's review in the June issue of this journal has so far forestalled what I would have said, that I hardly know where to begin. 'Confusion worse confounded' was the first impression after a cursory glance down the columns devoted to *Salix*, modified by a glimpse of 'method in the madness' on further study of the *Rubi*, *Rosæ*, *Epilobes*, and *Violæ*. The alterations of name, however, must surely provoke disastrous ebullitions of temper in all but the limited band of botanical doctrinaires, and that other handful of students who come, with trained minds fresh from modern schools, to the study of botanology.

The conflict of the codes as to christener and christened still goes on; and the *catalogue* continues to mirror the successes and reverses in that war over words. If finality might only be attained, well and good; but this side the millenium there seems a 'lile view' of it, as they say in the dales. Not only are changes in nomenclature plenty, but worse—there are not wanting reversions to the titles of the 6th and 7th Watsonian editions; for instance, the Hawkweed, No. 990, the new-fangled *Eupatorium* Griseb., of the 8th edition, has doffed 'the prior' gown—not a Prior's let us hope—to don once again the familiar (Fries!) kilt of *corymbosum*!

The want of a descriptive text-book in agreement with the names is a great drawback to its usefulness. The primary purpose of the catalogue—a check-list for use in the field, or in arranging herbaria—being what it is, where a name has been changed out of all recognition save by the cognoscenti, the long-in-use name should have been given in brackets at least. Uncertainty, if not quite hopeless, may lead a few dogged minds to enquire and acquire new light in the process; whilst to myself the double-shuffle executed in this new edition adds a zest to the viewing and affords an amusing variant on the acrostic; but still one feels quite sure the prevalent topsyturveydom is a nuisance to most. 'Priority' is all very well, but in the matter of one Immortal—Linnæus—some allowance for sentiment might (I think) and will by many be made whether or no. If the *hieraciurch* of this new L.C.—to adopt Mr. Britten's witty title for Hawkweed Hanbury, the editor thereof—thinks he has silenced adverse criticism by the device of calling into counsel (*in camera*) most of those botanists who animadverted on the 1886 edition, I fear he will be unpleasantly surprised, and suffer the fate of those who proclaim a creed or a crusade in advance of accepted opinion. It seems ungracious to say so much, but really the pointed-out objection to the 8th edition, that it was ahead of any Flora, is

accentuated in this 9th. It should *not* have been issued yet—not until the completion of the Suppl. to E. B., of Mr. Hanbury's Monograph on the Hawkweeds, and of a new Student's Flora or Manual. So much for the general aspect of the matter; as for the individual curiosities, however amusing, taken apart they are no doubt trivial by comparison. Here I can only mention a few at random, but the capital and a capital instance must have lady's place. A *demonstrandum ad absurdum* of over-modest pedantry is seen in the case of the Rock Sandwort (No. 263), which being, in this broth which too many cooks have prepared, thrown in with the Buda family—whereas it 'was not' when Adanson, Buda's *pater*, wrote—has no bondsman or sponsor at all, but, unaffiliated with its author, stands *Buda rupestris*, a naked, botanical foundling! Laughable, truly, but if L.C.C. had been added to represent the catalogue committee we are told of in the Explanations, those notable initials might have been supposed to have some connection with the London County Council; none the less they stand responsible for one of the worts of the empire!

Other alterations sound strangely instead of the household words all are familiar with. The time-honoured Hyacinthus—our beloved Bluebell—having been sunk in *Scilla* by Salisbury, must have *festalis* forsooth! for its name now in place of the suitable sobriquet of *nutans* allowed it by Smith, who was not nodding when he avoided the Charybdis of his forerunner.

Our old friend the Tormentil, the fugacious golden stars of which stud the open breast of the heath, is lost to us in *Potentilla sylvestris* Neck.—another bad name, because, though antedating the Linnean *Tormentilla* by two years, it is not specially nor even commonly a plant of shade and woodland. Another glaring example of servile precisianism is the deletion of the time-honoured Linnean *Mentha sylvestris*, understood of Ray and Martin Lister (published in the 2nd ed. of 'Species Plantarum' in Sept. 1762), in deference to the Hudsonian name of *longifolia*, his 'Flora Anglica' doubtfully beating in the press race its famous rival by a month! Useless to multiply instances, however; from the first family to the last the resurrectionist has been at work, and Burke-ing (if the term may be permitted) live for the regaining of early dead forms, has used mercilessly the fleam of a rule rigidly wielded, *secundum artem*. To the dilettante the new catalogue will be anathema, and yet it is not without good features of its own. Foremost of these is the indication of known hybrids by means of the sign of the cross (×)—happy, inevitable symbol!—arranged under the species-mother's name and followed by that of the supposed other parent. This botanic affiliation is much preferable

to a special christening of the issue which tended to keep out of sight the essential fact to be kept in view. For example, the hybrid *Geum*, called *intermedium* by Ehrhart, a cross between the herb bennet and the water avens, appears as '× *urbanum*,' under '530, *rivale* Linn.'

Some species like *Echinophora spinosa*—supposed extinct—and *Plantago argentea* have been omitted from the new list altogether; whilst, per contra, many new species, but mostly of doubtful indiginity, have their line for the first time. Some of these are—*Arabis alpina*, *Arenaria gothica*, *Lupinus perennis*, *Callitriche polymorpha*, *Falcaria vulgaris*, *Cotula coronopifolia*, *Hieracium hyparcticum*, *Hieracium auratum*, *Hieracium maritimum*, *Gentiana baltica*, *Amaranthus Blitum* (a readmission), *Potamogeton falcatus*, *Carex rhynchophylla*, *Poa palustris*, *Festuca heterophylla*, *Chara denudata*, and *Nitella Nordstedtiana*; making 1,958 'species' for Britain, as against 1,858 in the 8th edition. One still marks the refusal of a place to the increasingly frequent *Silene dichotoma*, to the hardy, established and spreading *Symphoricarpos* and *Cornus alba*; likewise *Bunias* and *Plantago Lagopus* and *Luzula albida*—strange, when *Stachys annua* and *Amarantus Blitum* can find a place, extremely rare as is one, and impermanent as is the other.

Festuca dumetorum still figures (as No. 1828), and like a convict apparently known as a number only, for no county-census is attached. Another anomaly is the reversion to the pre-Linnean tri-nomial designation of Lobel and other ancients: species 1182 reads *Veronica Anagallis-aquatica* L., although the author, in a paper in 1749, dropped the final specific adjective.

The blessed virgin's milk thistle has changed its name—on the whole for the better. It is now *Mariana lactea* of Hill—he was a not too esteemed herbalist, so it is to be hoped this fresh product in the eve of the century will keep better than other of his works.

On a third reading the Violet family strikes me as being very judiciously arranged. The *canina* of our heaths and turf-moors becomes *ericetorum* of Schrader—a good name, as well as the earliest; and the Widdy Bank plant, hitherto passing as *arenaria* (a bad name), has found a suitable title in *rupestris* of Schmidt.

Carex stricta Good., No. 1681, has changed to *C. Hudsonii* Arthur Bennett. The name, I see, topples to its fall under criticism already. The plant which we know so well with webbed filamentous sheaths, in tufts that make little islands in the pools where the snipe loves to brood, alike in Yorkshire and Sweden, is the *cæspitosus* of Hudson's 'Flora Anglica'; and, heretical as the word hereon seems, was in part the Linnæan plant which he knew better than who see with other eyes a century and more later.—F. A. LEES.

NOTE—FUNGI.

Puccinia malvacearum Corda at Flixton.—This was seen in abundance on *Malva sylvestris*, at Flixton. This fungus is interesting, as having almost stopped the cultivation of hollyhocks (*Althæa rosea* and varieties) a few years ago.—WM. FOWLER, Liversedge, June 28th, 1895.

NOTE—LICHENS.

Lichens at Flamborough.—A proof of the purity of the air about Flamborough is found in the fact that at Dane's Dyke the following common Lichens occur on the trees and gates :—*Evernia prunastri*, *Ramalina fraxinea*, *Parmelia physodes*, *Physcia parietina*.—WILLIAM FOWLER, Liversedge, June 28th, 1895.

NOTE—COLEOPTERA.

Elmidomorphus aubei (*Bagous petro*) at Askham Bog.—I found two Weevils in wet moss at Askham in the spring, which I could not identify. I therefore sent them to Dr. Sharp, who at once replied that they belonged to a species new to Britain, namely *Elmidomorphus aubei*. It appears, however, that this is the same insect as that described by Canon Fowler in the 'Naturalist' as *Bagous petro*, of which he took a single example at Askham many years ago. My specimens are therefore the second and third of this species taken in Britain.—W. C. HEY, West Ayton, July 1st, 1895.

NOTES—MAMMALIA.

Hedgehog at Lorton.—Returning from Lorton to Cockermouth on July 1st during a shower of rain I observed, just as I had left the former place, at 9 o'clock, a little animal sitting motionless in the road near a gateway leading into a thicket. When I reached it it ran for the gate, but being unable to pass under the bars at the place selected it was held a prisoner. I pulled it out with my stick, and found it to be a very fine hedgehog (*Erinaceus europæus* L.). The animal may be plentiful enough in the Lake district, but I have seldom seen it alive.—HILDERIC FRIEND, 7, Fern Bank, Cockermouth, July 2nd, 1895.

Albino Shrew in Yorkshire.—On June 25th my friend Major Arundel, of Ackworth, sent me a beautiful white specimen of the Common Shrew (*Sorex araneus*) which he had picked up dead the preceding day, on the road between Ackworth and Pontefract. It is a perfect albino, not having a dark hair anywhere, and the eyes are devoid of pigment. When I first received it, I was very much afraid that I should not be able to preserve it, as the hair was beginning to slip badly on the abdomen, but setting to work with great care, it has turned out a very pretty specimen.—OXLEY GRABHAM, M.A., M.B.O.U. Westfield, Flaxton, York, June 30th, 1895.

NOTES AND NEWS.

We welcome another book by our friend Mr. J. W. Tutt ; this time a record of 'Rambles in Alpine Valleys' (London, Swann Sonnenschein & Co., 1895, 8vo., cloth, 208 pp. and 5 plates). The volume abounds in matter of general interest and is just the stamp of book to create an appetite for natural history in those who at present disregard it ; the feeling after perusal must be one of intense longing for further information, this result being brought about by the useful and entertaining entomological information which Mr. Tutt gives so clearly at various intervals of his 'Rambles.' Uniform with the same author's 'Random Recollections of Woodland, Fen, and Hill,' and 'Woodside, Burnside, Hillside, and Marsh,' we highly recommend it, and in fact the whole trio, as being especially suitable for the young. Copious indices make them useful references upon matters which we are often prone to forget. As a handbook to those visiting the Italian side of Mont Blanc the volume to which we now give notice will be of great service.

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Papers and Records published with respect to the Natural History and Physical Features of the North of England.

FUNGI, 1888 to 1893.

THE present instalment has been compiled and edited by

WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the Bibliography of Fungi were published with the Cryptogamia in general, as follows :

For 1884—in 'Naturalist,' 1885, Oct., pp. 337-340.

„ 1885— „ 1886, June, „ 180-181.

„ 1886-7— „ 1888, Dec., „ 361-369.

The counties and vice-counties of which cognizance is taken are the following, as named and numbered in the Watsonian scheme :—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts. ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid-W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; 71, Isle of Man.

ANON. [not signed].

Cumberland.

Fungus Forays, 1886 . . Carlisle [abundance of *Lactarius helvus* Fr. in a boggy wood four miles from Carlisle]. Grevillea, Dec. 1886, p. 61.

Lincs., Cumberland, Cheviotland, Lanc. S.,
Westmorland?, York N.E. and S.W., Notts.

ANON. [not signed].

British Hyphomycetes [*Stachybotrys atra* Corda, Scarborough ; *S. minima* Cooke, Notts, Scarborough ; *Zygodesmus fuscus* Corda, Scarborough ; *Trichosporium inosculans* Berk., Scarborough ; *Monotospora megalospora* B.& Br., Scarborough ; *M. pumila* Mass., on *Graphium flexuosum*, Scarborough]. Grevillea, March 1888, pp. 97-99. [*Helminthosporium apiculatum* Corda, Orton Wood ; *H. folliculatum* Corda, Scarborough ; *H. gongotrichum* Corda, Orton Wood ; *H. fusisporium* Berk., Beeston (Notts) ; *H. turbinatum* B.& Br., Lancashire ; *H. reticulatum* Cke., Thirsk (sic) ; *Brachysporium stemphylioides* Corda, Scarborough ; *B. obovatum* Berk., Scarborough, Orton Wood ; *Macrosporium concinnum* B.& Br., Orton Wood]. Grevillea, June 1888, pp. 107-108. [*Stilbum tomentosum* Schr., Scarborough, Carlisle ; *S. erythrocephalum* Ditm., Scarborough, Orton Wood ; *S. vulgare* Tode, Scarborough, Berwick ; *S. fimetarium* Pers., Scarborough ; *Isaria farinosa* Dicks., Carlisle ; *I. intricata* Fr., Scarborough ; *I. spumarioides* Cooke, Knowsley ; *Ceratium hydroides* A.& S., Scarborough, Carlisle, Oldham, Tansor (Notts) ; *Graphium rigidum* Pers., Carlisle ; *G. flexuosum* Mass., Scarborough ; *G. subulatum* Nees, Scarborough ; *Tubercularia conorum* C.& M., Carlisle ; *Egerita candida* Pers., Scarborough, near Manchester ; *Hymenula rubella* Fr., on *Typha*, Lincolnshire ; *Cylindrocolla urticae* Pers., Thirsk ; *Volutella gilva* Pers., Southwick, Notts ; *Fusarium heterosporum* Nees, Goole ; *F. mucophytum* Sm., Huddersfield ; *Pionnotes beta* (Desm.), Scarborough ; *Epicoccum neglectum* Desm., Scarborough, Goole]. Grevillea, Sep. 1888, pp. 9-16.

- ANON. [not signed]. Westmorland.
A New Species of Nectria [found on an old shoe, Bowness, Windermere, by J. Atkinson; described, under name of *N. fuscospora* Plow.]. Westm. Note Book and Nat. Hist. Record, Dec. 1888, p. 90.
- ANON. [not signed]. York N.E.
Omitted Diagnoses [of Fungi, not in Saccardo; *Helminthosporium reticulatum* Cooke, on dead leaves of *Fraxinus*, Thirsk, Yorkshire]. Grevillea, March 1889, p. 68.
- ANON. [not signed]. Lanc. S.
Liverpool Naturalists' Field Club [at Knowsley Park, 21st Sep., 1889; *Polyporus intybaceus*, *P. elegans*, *Amanita rubescens*, and *Hygrophorus psittacinus* noted]. Research, Nov. 1889, p. 114.
- ANON. [not signed]. Cheshire.
Rambles taken during the year 1889 . . . Gatley [June 1st; *Physarius tussilagium* searched for unsuccessfully; *Puccinia orgopodii* found]. 10th Ann. Rep. Manch. Micr. Soc. for 1889, publ. 1890, p. 112.
- ANON. [not signed]. Lanc. S.
Rambles taken during the year 1889 . . . Stalybridge [Stamford Park, Hurst and Lees, Aug. 24th; *Vibrio fluviatilis* noted as found]. 10th Ann. Rep. Manch. Microsc. Society for 1889, publ. 1890, pp. 117-118.
- ANON. [not signed]. Isle of Man.
Phenological Observations [in Isle of Man; Mushroom (*Agaricus campestris*), July 1st]. Yn Lioar Manninagh, April 1890, p. 163.
- ANON. [not signed]. York S.E.
A Large Mushroom [presumably *Psalliota campestris*, picked up in Londesborough Park, 42 inches circumference, 2 lbs. 0½ oz. weight; other dimensions given]. Gard. Chron., Sep. 5th, 1891, p. 279.
- ANON. [not signed]. York N.E.
Notes [of Fungus Forays; the Yorkshire one at Malton, Sep. 14th and 15th, for Castle Howard Woods, was the most successful one of the season; *Inocybe adequata* Britz. was added to the British list]. Grevillea, Dec. 1892, p. 48.
- ANON. [not signed]. York S.E.
Fungus Forays [being a friendly criticism of the Yorkshire Naturalists' Union foray at Pocklington, on Sep. 6th and 7th, 1893]. Grevillea, Dec. 1893, p. 47.
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Agaricus (Pleurotus) revolutus near Thirsk [also *Hirneola auricula-judæ*]. Nat., Feb. 1889, p. 44.
- J. ATKINSON. Westmorland.
List of Fungi (exclusive of the Hymenomycetes) found in the neighbourhood of Bowness-on-Windermere [160 species, with annotations; many identified by Phillips and Plowright]. Westm. Note Book and Nat. Hist. Record, Dec. 1888, pp. 90-94.
- J. BATALHA-REIS. Cheviotland.
Note on the Plants and Insects observed at the Wooler Meeting [on Sep. 16th and 17th, 1887; *Puccinia graminis* Pers. noted and full account added]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 10, part 1, publ. 1888, pp. 197-200.
- HARRY B. BOOTH. York Mid W. or S.W.
Notes from West Yorkshire [anent abundance of Morels (*Morchella esculenta*) about Bradford this season]. Garner, Sep. 1st, 1888, p. 189.
- W. D. BRAITHWAITE. York S.W.
Ackworth Natural History Society [*Phallus impudicus* at Potteric Carr]. N.H.J., Oct. 15th, 1889, p. 124.

W. D. BRAITHWAITE.

York S.W.

Ackworth School Excursions [at Potteric Carr, 24th August 1889, *Phallus impudicus*]. N.H.J., Oct. 15th, 1889, p. 125.

— CAMM.

Cumberland.

[Fungi from Carlisle—*Hemiarcyria serpula* and *Craterium aureum*—exhibited to Birm. Micro. & Nat. Union, Oct. 21st, 1889]. Midl. Nat., Dec. 1889, p. 288.

M. C. COOKE.

York S.W., Notts, Derbyshire.

British Sphærospideæ. Corrections and Additions to be made to the list already published. [*Phoma ilicis* Desm., on holly leaves, *P. rubella* Grove, and *P. sanguinolenta* Grove, on stems of *Carduus*, Three Shire Oak]. Grevillea, Sep. 1886, pp. 18-19.

Westmorland, Derbyshire, Cumberland, Northumb. S., Cheshire,

M. C. COOKE.

Durham, York N.E., Mid W., S.W., and S.E.

New British Fungi [described: *Æcidium glaucis* Dozy. and Molk., on *Glaux maritima* Paull, near Hull (E. A. Peak)]. Grevillea, Sep. 1886, pp. 28-29. [*Agaricus* (*Armillaria*) *jasonis* Cke. & Mass., on stumps; *Peniophora hydnoidea* C. & M., on bark; *Guepinia pezizaeformis* Berk., on branches; *Phacidium humigenum* C. & M., on damp ground amongst decayed leaves, twigs; *Monosporium olivaceum* C. & M., on *Corticium* and bark; all from Carlisle (Dr. Carlyle)]. Grevillea, March 1888, pp. 77-78. [*Agaricus* (*Lepiota*) *micropholis* B. & Br., on cocoa nut fibre in a stove, Scarborough; *A. (L.) martialis* C. & M., on tree fern in conservatory, Scarborough (G. Massee)]. Grevillea, June 1888, p. 101. [*Agaricus* (*Pholiota*) *mollisporium* C. & M., Carlisle (Dr. Carlyle); *Lactarius* (*Russularia*) *tomentosus* Otto, Orton Moss near Carlisle; *L. (R.) mammosus* var. *monstrosus* Fr., Scarborough (G. Massee); *L. (R.) spinosulus* Quel. var. *violaceus* Cooke, Chatsworth, Sep. 1873; *L. (R.) cremor* Fr. var. *pauper* Karst., Carlisle; *Hypocrea moriformis* C. & M., Carlisle (Dr. Carlyle); *Nectria pallidula* Cooke, do. (id.)]. Grevillea, Sep. 1888, pp. 1-3. *Lactarius aspidens* Fr., Harewood near Leeds, G. Massee; *Russula* (*Fragiles*) *puellaris* Fr., Morpeth, C. H. Sp. Perceval; *R. (F.) roseipes* Secr., do. do.] Grevillea, Dec. 1888, pp. 39-41. [*Physarum carlylei* Massee, on rotten wood, Carlisle (Dr. Carlyle)]. Grevillea, March 1889, p. 56. [*Puccinia schræteri* Pass., C. W. Dod, Edge Hall, Malpas, on living leaves of jonquil; *Mycogone alba* Letell., Wynyard, Stockton-on-Tees (H. E. Gribble)]. Grevillea, June 1889, pp. 79-80. [*Marasmius prasioides* Fries, Scarborough; *Strumella strobilina* C. & M., Newcastle, on fir cones]. Grevillea, Sep. 1889, p. 20. [*Trichia purpurascens* Nyl., on moss, Carlisle (Dr. Carlyle)]. Grevillea, Dec. 1889, p. 27. [*Agaricus* (*Tricholoma*) *fallax* Peck, under firs, Scarborough, March 1883, *A. (Collybia) thelephorus* Cke. & Mass., in peat bogs, Scarborough, *A. (Flammula) nitens* C. & M., on the ground, Carlisle, Sep. 1887, *A. (Naucoria) obtusus* C. & M., on the ground, Scarborough, *A. (N.) nasutus* Kalch., in swampy places, Scarborough, *A. (Galera) siligineus* Fries., on road scrapings, Scarborough, *A. (Tubaria) muscorum* Pers., amongst moss on heaths, Scarborough, *Bolbitius grandiusculus* C. & M., amongst grass on the cliffs, Scarborough, *Polystictus (stuposi) fibula* Fr., Carlisle, *Otthia crategi* Fekl., on branches of crægeus, Newcastle-on-Tyne]. Grevillea, March 1890, pp. 51-53. [*Cytispora taxifoliae* Cke. & Mass., in foliis *Taxi*, near Carlisle]. Grevillea, June 1890, p. 73. [*Lactarius involutus* Sopp., on the ground, Bolton Woods, Yorks.]. Grevillea, Dec. 1890, p. 41. [*Stuartella carlylei* Cke. & Mass., on naked wood, Carlisle (Dr. Carlyle)]. Grevillea, March 1891, p. 86. [*Sporotrichum laticolor* Cke. & Mass., on bark, Halifax (Crossland)]. Grevillea, Dec. 1891, p. 38. [Notices (fide Worthington G. Smith) of *Agaricus* (*Tricholoma*) *coryphaeus* Fr., and *A. (Entoloma) pluteoides* Fr., as found on the ground and on rotten wood respectively, at Morpeth]. Grevillea, March 1892, p. 95. [*Coprinus volvaceo-minimus* Crossl., Wellhead, Halifax, *Hydnum fuligineo-album* Schmidt, Halifax (C. Crossland); and *Phoma pinastrella* Sacc., *Lachnea* (*Scutellinia*) *erinacea* Schw., *Trichopeziza nidulus* var. *macrospora* C. & M.,

Pseudohlotium farinaceum C.&M., *Peziza quisquiliarum* B.&C., *Belonium myriadeum* C. & M., *Cenangium acicolum* Fckl., *C. leoninum* C. & M., *Dermatea umbrinae* C. & M., and *Scleroderris majuscula* C. & M., all from Carlisle]. *Grevillea*, March 1893, pp. 69-73.

M. C. C[OOKE].

Northumberland S.

Woolhope Fungus Foray [with notice of *Russula puellaris* and *R. roseipes* near Morpeth]. *Gard. Chron.*, Oct. 27th, 1888, p. 481.

M. C. COOKE.

Cumberland.

Notes on Thelephoreæ [with record of *Hymenochaete nigrescens* Cooke, for Carlisle]. *Grevillea*, Sep. 1891, p. 11.

WM. CROSS.

Westmorland and Furness.

Boat-Botanising on Lake Windermere [with notes of *Xenodochus carbonarius*, *Uredo alchemilla*, and *Uromyces concentrica*]. *Wesl. Nat.*, Sep. 1888, pp. 220-222.

WILLIAM CROSS.

Lanc. W.

Roadside Gatherings at Arnside [20th Sep., 1888; *Coleosporium tussilaginis*, *Phragmidium acuminatum*, *Lecythea poterii*, *Puccinia valantiae*, *P. glechomatis*, *P. malvacearum*, *P. violarum*, *P. clinopodii*, *P. veronicarum*, *Uredo potentillarum*, *Phragmidium obtusatum*, *P. bulbosum*, *Coleosporium sonchi-arvensis*, *Uredo hypericorum*, and *Cystopus candidus* noted, with hosts and habitats]. *Wesl. Nat.*, Nov. 1888, pp. 281-283.

WILLIAM CROSS.

Lanc. W.

Among the Fylde Flowers. I.—Lytham and St. Annes-on-the-Sea [*Uncinula adunca* (Willow-Blight) noted]. *Wesl. Nat.*, Jan. 1889, p. 323.

WILLIAM CROSS.

Lanc. W.

Among the Fylde Flowers. . . . II.—The Woodlands [near Lytham yield *Puccinia liliacearum* on *Ornithogalum umbellatum*]. *Wesl. Nat.*, June 1889, p. 120.

CHARLES CROSSLAND.

York S.W.

Fungi New to West Yorkshire [are *Agaricus* (*Tricholoma*) *portentosus*, *A. (T.) humilis*, *A. (Flammula) hybridus*, *Lactarius squalidus*, *Lentinus lepidens* var. *contiguus*, *Phlebia contorta*, and *Clavaria grisea*, identified by Geo. Masee; full details of locality and date given]. *Nat.*, Dec. 1890, p. 356. [giving localities in the Halifax District for *Agaricus* (*Collybia*) *fusipes* var. *adematopus*, *A. (C.) plexipes*, *Lactarius camphoratus*, and *Ombrophila purpurea*; identifications by Geo. Masee and W. Phillips]. *Nat.*, Jan. 1891, p. 20.

CHARLES CROSSLAND.

York S.W. and Mid W.

New West Yorkshire Fungi, and Additional Localities for others previously recorded [with a bibliographical introduction; stations given for 142 Hymenomycetes and for 5 Gasteromycetes, 16 of the former being additions to the West Yorkshire list; localities stated]. *Nat.*, Sep. 1892, pp. 261-268.

CHARLES CROSSLAND.

York S.W.

New and Rare Fungi near Halifax [*Coprinus oblectus* (Bolt.) re-discovered and described; *Hydnum fuligineo-album* Schmidt, described; and *Coprinus volvaceo-minimus* described as new to science; all from Halifax or Hebden Bridge]. *Nat.*, Dec. 1892, pp. 371-2.

CHARLES CROSSLAND.

York N.E. and S.E.

Castle Howard Fungi: A Correction [*Sporodinia aspergillus* and *S. dichotoma*, entered in error, to be deleted]. *Nat.*, Feb. 1893, p. 58.

CHARLES CROSSLAND.

York S.W.

[Fungi observed by] Yorkshire Naturalists at Askern [15th June 1893: *Pluteus cervinus*, *Stropharia semiglobatus*, *Poria versicolor*, *Dædalea unicolor*, *Stereum hirsutum*, *Sphaerobolus stellatus*, *Lycoperdon epidendron*, *Reticularia umbrina*, *Uromyces polygoni*, *Perisporium vulgare*, *Peronospora affinis*, *Reticularia lycoperdon*, *Mollisia cinerea*, *M. atro-cinerea*, *Lachnea scutellata*,

Naturalist,

Lachnella apala, *Nectria mammoides*, *Sphærella rumicis*, *Peronospora effusa*, *Polyactis fascicularis*, *Penicillium crustaceum* v. *coremium*, *Ægerita candias*, *Uromyces poæ*, *Puccinia coronata*, *P. poarum*, *P. caricis*, *P. phragmites*, *P. persistens* (also plentiful at Goole, where it was first found in Yorkshire), *P. suaveolens*, *P. bullata*, *Triphragmium ulmarie*, and *Ustilago segetum* noted, some of them at Knottingley]. Nat., Oct. 1893, pp. 290-291.

J. BURTT DAVY.

Linc. N.

[*Agaricus* (*Volvaria*) *speciosus* Fr. seen by] Lincolnshire Naturalists at Gibraltar Point [on 15th Aug., 1891]. Nat., Feb. 1892, p. 54.

HILDERIC FRIEND.

Notts.

Coleosporium Senecionis, Fr. [noted in great profusion on *Senecio lividus* Smith, during a walk from Ollerton to Rufford Abbey, mid-Aug. 1887]. Nat. Monthly, Oct. 1887, p. 39.

HILDERIC FRIEND.

Notts, Lanc. W.

The Pathology of the Anemone [*Æcidium leucospermum* DC. in great profusion in Wellow Park, Notts, also at Lancaster and Worksop; *Polycystis* or *Urocystis pompholygodes* Lév., three or four Notts localities; and other micro-fungi referred to]. Nat. Monthly, Nov. 1887, p. 44.

HILDERIC FRIEND.

Cumberland.

Ergot of Rye, or Spur [(*Claviceps purpurea* Tul.) as observed on grass in Cumberland; life-history treated of, and illustrated by woodcut]. Wesley Nat., Nov. 1887, p. 274.

HILDERIC FRIEND.

Notts, Lancs.

Coleosporium Rhinanthacearum, Lév. [on a patch of *Bartsia* growing near Belph, North Notts, and in Lancashire]. Nat. Monthly, Dec. 1887, p. 76.

HILDERIC FRIEND.

Notts, York S.W.

Notes on the Flora of North Notts [*Æcidium berberidis* between Carlton and Hodsock; *Peridermium pini* and *P. acicolum* at the Plain Piece and in Anston Crag; *Puccinia pimpinella* Link at Walesley; and *Coleosporium senecionis* between Ollerton and Rufford]. Trans. and 35th Rep., Nottingham Nat. Soc., 1887, pub. 1888, p. 33.

HILDERIC FRIEND.

Notts.

The Flora of the District [of Sherwood Forest and the Dukeries; noting *Agaricus muscarius*, *Ithyphallus impudicus*, *Fistulina*, *Cynophallus*, *Chondrioderma cookei* Rost., *Puccinia campanulæ*, *Ramularia lapsanæ*, *Podisoma sabinæ* and three species of *Rastelia*]. Sissons' 'Beauties of Sherwood Forest'; a guide to the 'Dukeries' and Worksop. Second Ed., 1888, pp. 134-5.

HILDERIC FRIEND.

York S.W.

The Flora of West Yorkshire [reviewed; additional records given for *Peziza aurantia* at Sheffield, *P. leporina*, *Morchella esculenta*, *Helvella crispa*, and *Æcidium crassum* in the same district, chiefly at Anston Crag]. Wesl. Nat., May 1888, p. 75.

HILDERIC FRIEND.

Lanc. W. or S.

A Rare British Fungus [*Puccinia liliacearum* Duby, found in Lancashire on *Ornithogalum umbellatum*, by William Cross, of Lytham; elaborate account]. Wesl. Nat., June 1888, pp. 107-109.

HILDERIC FRIEND.

Cumberland.

A Cumberland Moss [describing a visit to one, where occurred *Æcidium hieracii* and *Æ. valerianacearum*]. Wesl. Nat., July 1888, pp. 142-144.

HILDERIC FRIEND.

Cumberland.

Alternation of Generation in Fungi [with note of observations on *Æcidium tussilaginis* being succeeded by *Puccinia poarum* near Silloth, 20th June and three weeks later, 1888]. Wesl. Nat., Aug. 1888, p. 188.

HILDERIC FRIEND.

Cumberland.

The Eden and Solway [noting the Gale-blight (*Peronospora rufibasis*) occurring on the Moss near Drumburgh]. Wesl. Nat., Sep. 1888, p. 208.

? HILDERIC FRIEND [not signed].

York Mid W.

Alternation of Generation in Fungi [near Leeds, grass growing under infected Coltsfoot affected with grass blight]. Wesl. Nat., Oct. 1888, p. 252.

HILDERIC FRIEND.

Cumberland.

Solway Dunes [at Silloth] in April [*Æcidium ficariæ* being mentioned]. Sci. Goss., June 1889, pp. 125-126.

HILDERIC FRIEND.

Cumberland.

Silloth in June [*Ustilago bromivora* and *Cystopus* noted as occurring]. Sci. Goss., July 1889, p. 156.

PERCY H. GRIMSHAW.

York Mid W.

Geaster hygrometricus Fr. in Wharfedale [on Rombalds Moor, 12th Aug., 1891: identified by M. C. Cooke; not recorded for West Yorkshire since Bolton's time (1791)]. Nat., Sep. 1891, p. 275; noted in Grevillea, Dec. 1891, p. 39.

W. B. GROVE.

'Yorkshire.'

[Fungi exhibited to Birm. Nat. Hist. Soc., for H. T. Soppitt; *Agaricus licmophorus*, *Geoglossum glabrum*, and *G. viscosum* from Yorkshire]. Midl. Nat., Jan. 1887, p. 26.

W. B. GROVE.

Northumberland S.

[*Onygena apus*, from Newcastle-on-Tyne, a fungus found on dead hoofs of cows, etc.]. Midl. Nat., June 1887, p. 162.

W. B. GROVE.

Lanc. W.

[*Puccinia liliacearum* from Lytham, collected by Hilderic Friend]. Midl. Nat., July 1888, p. 189.

W. B. GROVE.

Cumberland.

[Fungi exhibited to Birmingham N. H. S.:—*Polyporus elegans*, slopes of Scaw Fell, near Wastwater; *Puccinia betonicæ*, Rosthwaite, Borrowdale]. Midl. Nat., July 1889, p. 170.

F. M. A. HATCHARD.

York S.W.

Large Truffle [(? *Tuber* sp.), weighing 7 oz. good, measuring 10½ ins. round, in Stapleton Park, Pontefract]. Field, Nov. 9th, 1889, p. 671.

WILLIAM DELISLE HAY.

Durh., Yorkshire, Lake District.

An Elementary Text-Book | of | British Fungi. | Illustrated. | By | William Delisle Hay, F.R.G.S., | author of . . . | [2 lines of quotation] | [woodcut] | London: | Swan Sonnenschein, Lowrey & Co., | . . . | 1887 [8vo. cloth, pp. viii. + 238 with 59 plates and 5 tables; notes at p. 14 that the Morel (*Morchella esculenta*) has friends in Durham; at p. 82 that a farmer in Yorkshire states that fields in which stallions or bulls are pastured are always the most prolific in Pratelles (*Psalliota* spp.); and at p. 185 that author has seen *Polyporus perennis* a good deal in the Lake District].

P. M. C. K[ERMODE].

Isle of Man,

Phenological Observations [with Manx dates for *Agaricus campestris* in 1888 and in 1890]. Yn Lioar Manninagh, April 1889, p. 65; and April-October 1891, p. 295.

FREDERIC ARNOLD LEES.

York N.W., Mid W., and S.W.

The Flora | of | West Yorkshire | with a | sketch of the climatology and lithology in connection therewith [8vo., 1888; Fungi at pp. 663-742 and 812-814; the number of species included is 1,009].

J. C. MCPHERSON.

York S.E.

A Large Mushroom [species not stated, possibly *Agaricus* (*Psalliota*) *campestris*; 42 inches circumference, 13½ inches diameter, stem 6 inches round, weight 2 lbs. 0½ oz.; found in Londesborough Park, Market Weighton]. Field, Sep. 5th, 1891, p. 396.

J. A. MARTINDALE.

Westm. and Furness.

Our District [=Westmorland and Furness, defined, described, divided into six river-basin districts, and illustrated by an excellent coloured map; each district has a list of its rarer fungi given; the list for the entire county amounts to 138, on the authority of C. H. Waddell]. Westm. Note Book and Nat. Hist. Record, Part I., March 1888, pp. 1-19 of Record, with folding map.

G. MASSEE.

Chesh., Cumberland, York S.W. and N.E.

British Pyrenomycetes (a preliminary list of known species) [*Cordyceps entomorrhiza* Dicks., Castle Howard; *Hypocrea farinosa* B. & Br., Chester; *H. ricciodea* Balt., Halifax, Carlisle; *Nectria aquifolii* Fr., Scarborough; *N. mammoidea* Plow., Scarborough; *Hyponyces ater* Fr., Carlisle; *H. aurantius* Pers., Scarborough; *Oomyces carneo-albus* Lib., Carlisle; *Dialonectria leightoni* B. & Br., Yorkshire; *Lasionectria flavida* Ca., Scarborough; *Melanospora caprina* Fr., Carlisle]. Grevillea, Sep. 1886, pp. 1-9.

York N.W. and N.E., Cumberland, Lanc. W. and S.,

G. MASSEE.

Linc. N. or S.

British Pyrenomycetes [*Rosellinia fasciculata* Fr., Scarborough, Orton Wood; *Sordaria bovilla* Cke., Scarborough]. Grevillea, June 1888, pp. 118-119. [*Conisphaeria macrasca* Sacc., on bleached elm wood, Bulwer, Yorks., Scarborough; *Ticothecium gelidarium* Mudd, on *Squamaria gelida*, Teesdale; *T. gemmiferum* Tayl., Cleveland; *T. squamarioides* Mudd, on *Squamaria gelida*, Teesdale; *T. cerinarium* Mudd, on *Callopisma* near Ayton, Cleveland; *T. pygmaeum* Korb., var. *ventosicola* Mudd, on *Aspicilia*, Cleveland; on *Hamatococca*, Kildale Moor; *T. rimosicolum* Leight., Penhill, Yorks., Carlton Bank, Cleveland]. Grevillea, Sep. 1888, pp. 4-5. [*Lophiostoma macrostomum* Tode, Orton Wood]. Grevillea, March 1889, p. 58. [*Gnomonia avellanae* Sch., Scarborough; *G. vulgaris* Ces., Thirsk, Scarborough; *G. coryli* Batsch, Castle Howard; *G. setacea* Pers., Scarborough; and *G. campylostoma* Auers., Carlisle]. Grevillea, June 1889, p. 74. [*Massaria scoriadea* Fr., Orton Wood]. Grevillea, Sep. 1889, p. 9. [*Heptameria glaucospora* B. & C., on *Artemisia absinthium* at Fleetwood, *H. maculans* Desm. at Terrington, *H. graminis* Fekl. on *Phragmites communis* at Terrington, but county not stated]. Grevillea, March 1890, pp. 57-59. [*Sphaerella brassicicola* Duby, Lincoln, *S. typhae* Lasch., on *Typha latifolia*, Terrington (county uncertain), *S. aucupariae* Lasch., on *Sorbus aucuparia* at Manchester, and *S. helicicola* Desm., on ivy leaves, Carlisle]. Grevillea, Dec. 1890, pp. 42-44.

GEORGE MASSEE and H. T. SOPPITT.

York Mid W., N.E., S.W.

Fungus Foray at Bramham and Harewood Parks [25th September, 1888; description of the day's investigations, and a full list—with localities—of the 202 species collected and determined, of which 42 were new to the West Riding Flora, and two (*Lactarius aspidius* Fr. and *Russula cuprea*) new to Britain]. Nat., Nov. 1888, pp. 321-329.

GEORGE MASSEE.

Cumb., York N.E., Notts.

A Revision of the Trichiaceæ [noting *Trichia carlyleana* sp. nov., Carlisle!; (Dr. Carlyle); *T. fragilis* Rost., Castle Howard, Yorks.! and Carlisle; *T. fallax* Rost., Scarborough! and Carlisle! *T. varia* Rost., Staunton, Notts! Scarborough! and Carlisle! *T. scabra* Rost., Taunton, Notts! and Scarborough! *T. abrupta* Cooke, Scarborough! *T. jackii* Rost., Castle Howard! *T. intermedia* Mass., on trunks, Scarborough! *T. chrysosperma* Rost., Castle Howard! *T. affinis* De Bary, Scarborough! Castle Howard! and Carlisle! *Prototrachia cuprea* sp. nov., on dead thorn, Scarborough! *Hemiarcyria rubiformis* Rost., Bulmer, N. Yorks.! and Scarborough! *H. clavata* Rost., Carlisle! and *H. serpula* Rost., Carlisle!]. J. of R. Micr. Soc., June 1889, pp. 325-359, and plates 5-8.

GEORGE MASSEE.

Cumberland.

A Monograph of the Thelephoreæ.—Part I. [including note of *Peniophora hydroides* C. & M., Carlisle (p. 154)]. Journ. of Linn. Soc., Bot., No. 170, publ. June 8, 1889, pp. 107-155, and plates 45-47.

G. MASSEE.

Cumberland.

Revision of Thelephoreæ [*Peniophora hydroides* C. & M., on bark, Carlisle]. Grevillea, Sep. 1889, p. 22.

G. MASSEE [not signed].

Cumberland, York N.E., Notts.

British Thelephoreæ [briefly described; including *Hymenochaete nigrescens* Cooke, on dry wood, Carlisle]. Grevillea, Sep. 1890, pp. 19-20. [*Corticium populinum* Fr., on poplar, Scarborough, *C. scutellare* Berk. & Curt., Carlisle, *C. lacteum* Fr. on wood, Sherwood Forest, *C. nudum* Fr., on bark, Carlisle, *C. lacunosum* Berk. & Br., Carlisle, *C. roseolum* Mass., Carlisle, *C. sanguineum* Fr., Carlisle, *C. carlylei* Mass., on oak bark, Carlisle, *C. lividum* Pers., Carlisle, and *C. nigrescens* Fr., on branches, Carlisle]. Grevillea, Dec. 1890, pp. 25-30.

GEORGE MASSEE.

York S.W.

British Fungi. | Phycomycetes and Ustilagineæ. | By | George Massee | . . . | . . . [Monogram] | London: | L. Reeve & Co., | 5, Henrietta Street, Covent Garden. | 1891. [8vo. pp. xvi. + 232 + 8 plates; *Peronosporites antiquarius* W. Sm., a fossil species, found in the lower coal-measures, Halifax (p. 213)].

GEORGE MASSEE [not signed].

York S.W.

Fungus Foray of the Yorkshire Naturalists' Union [at Doncaster, Sep. 16 and 17, 1891; mention made of *Lactarius volemus*, *L. uvidus*, *Russula aurata*, *Hygrophorus chrysodon*, *Paxillus crassus*, and *Merulius aureus*; the latter new to Britain and in fine condition]. Gard. Chron., Oct. 3rd, 1891, p. 405.

York S. W. and N.E., Notts, Cumberland,

GEORGE MASSEE.

Northumberland S.

British Fungus-Flora. A Classified Text-Book of Mycology. . . .

In three volumes. Vol. i, London, . . . 1892 [xii + 432 pages, small 8vo.; contains records of *Fomes resupinatus* (Bolt.), near Burks Hall, Halifax, (p. 227), *Polyporus adustus* Fr., in Notts (p. 250), *Boletus purpureus* F. 'at Morpeth in Cumberland' (sic, p. 290), *Coprinus oblectus* (Bolt.) at Halifax (p. 307), *C. aphthosus* var. *boltoni* Mass. at Halifax (pp. 311-312), *C. extensorius* Fr. at Halifax (p. 314), *C. tomentosus* (Bull.) near Ogden-Kirk, near Halifax, Bolton (p. 316), *C. hemerobius* Fr. at Halifax (p. 329), *Psilocybe catervata* Mass., Carlisle (p. 378), *Hypholoma pyrotrichus* var. *egregia* Mass. Scarborough (p. 389), *Agaricus peronatus* Mass., Carlisle (p. 415), and *Peniophora crosslandi* Mass., Halifax (p. 418)]. . . In three volumes. Vol. ii. London, . . . 1893. [Small 8vo., viii + 460 pages, contains records of *Cortinarius* (*Hygrocybe*) *tortuosus* Fr. at Scarborough (p. 21), *Flammula fusus* Batsch, and *Galera conferta* Bolt. at Halifax (pp. 135 and 147), and *Clitocybe subdecastes* C. & M., at Carlisle (p. 419)].

G. MASSEE.

York S.W. and N.E.

New or Critical British Fungi [including *Peniophora crosslandi*, Halifax (Crossland)]. Grevillea, Sep., 1892, p. 7. [Descriptions of *Agaricus* (*Omphalia*) *alutaceus* Cke. & Massee, Whitcliffe Wood, *A. (Inocybe) adequata* Britz, Castle Howard, and *Coprinus oblectus* Fries., rediscovered in Bolton's original locality, Halifax, by C. Crossland]. Grevillea, Dec. 1892, pp. 40-41. [*Sarcoscypha tenuispora* Cke. & Mass., Scarborough and Halifax, and *Trichopeziza carinata* Cke. & Mass., Halifax]. Grevillea, June 1893, p. 121. [Notes on *Caldesiella ferruginosa* Sacc., collected at the last Y.N.U. fungus foray, *Clavaria* (*Syncoryne*) *dissipabilis* Britz., Halifax, *Neottiella microspora* C. & Mass., Scarborough, *Orbilbia flexuosa* Crossl., Lightcliffe near Halifax, and *Patinella macrospora* Mass., Halifax]. Grevillea, Dec. 1893, pp. 38-45.

Naturalist,

- GEO. MASSEE.** York N.E., S.E., S.W.
Fungus Foray at Castle Howard and Malton [Sep. 14th and 15th, 1892; narrative, followed by list of 259 species collected in various parts of Yorkshire, localities being stated; list drawn up by A. Clarke, C. Crossland, and H. T. Soppitt]. Nat., Dec. 1892, pp. 355-365.
- S. L. MOSLEY.** York S.W.
Observations at Anston Stones, May 1889 [on *Æcidium ranunculacearum*, *Æ. dracontii*, *Æ. allii*, *Æ. violæ*, *Polycystis violæ*]. Nat., Aug. 1889, p. 226.
- JNO. PHILIPSON.** Cheviotland.
Freshwater Fish [and attacks of *Saprolegnia ferax* on Tweed Salmon]. Nat. Hist. Trans. Northumb. Durh. and Newc., vol. 10, pt. 2, 1890, p. 420.
- WILLIAM PHILLIPS.** Cumberland.
British Discomycetes. Notes and Additions, Number 1 [*Phacidium clematidis* Phill., n. sp., Carlisle, on dead branches of *Clematis*, Dr. Carlyle]. Grevillea, Dec. 1888, p. 46. . . No. 2 [including *Mollisia vulgaris* (Fr.) from Carlisle! Dr. Carlyle, and *Phacidium terrestre* Niessl., near Carlisle! Dr. Carlyle]. Grevillea, June 1890, pp. 83 and 86.
- CHARLES B. PLOWRIGHT.** York Mid W., Cheshire, Linc. N.
A Monograph | of the | British | Uredineæ and Ustilagineæ | with an account of their biology | including the methods of observing the | germination of their spores and of their experimental culture | By | Charles B. Plowright, F.L.S., M.R.C.S. | [seven lines of titles] | illustrated with woodcuts and eight plates | London | Kegan Paul, Trench & Co., 1, Paternoster Square | 1889 [8vo. cloth, pp. x. + 347; with notes of *Urocystis primulicola* Magnus in C. Wolley Dod's garden (Edge Hall, Malpas) (p. 95); *Puccinia variabilis* (Grev.) at Grassington on *Taraxacum officinale* (p. 151); *P. schæleriana* Pl. & Mag. at Skegness (p. 172); *P. persistens* Plowr. near Goole, T. Birks, June 1884 (p. 181); *P. liliacearum* Duby near Carlisle, Hilderic Friend (p. 197); *P. andersoni* B. & Br., Yorkshire, H. T. Soppitt (p. 204); and *P. adoxæ* DC. in Yorkshire, H. T. Soppitt (p. 208)].
- CHARLES B. PLOWRIGHT.** York Mid W.
New Parasitic Fungi [including *Melampsora galii* Link, found by H. T. Soppitt on *Galium verum*, near Ingleborough, July 1889]. Gard. Chron., Nov. 2, 1889, p. 506.
- CHARLES B. PLOWRIGHT and W. THOMSON.** Cumberland.
On the Life-history of the *Æcidium* on *Paris quadrifolia* [near Carlisle, where it appears in but small quantity and was first found in May 1890 by Mr. Thomson; described as *Puccinia paridis*, the æcidiospore being *Æcidium paridis*]. Journ. of Linn. Soc., Bot., No. 205, vol. 30, pp. 43-44.
- CHARLES B. PLOWRIGHT.** York S.W.
New British Fungus [found by H. G. Ward in Sandbank Wood near Doncaster, Sep. 17th, 1891; *Tilletia rauwenhofii* = *Polycystis holci*; it was in considerable abundance]. Gard. Chron., Sep. 26th, 1891, p. 374.
- C. B. PLOWRIGHT.** Westmorland, York S.E.
Experimental Researches on the Life History of Certain Uredineæ [including *Puccinia agrostidis* (æcidiospores = *Æcidium aquilegæ*) at Bowness, Windermere, and *Uromyces lineolatus* (æcidiospores = *Æcidium glaucis*) at Paul, on the banks of the Humber]. Grevillea, June 1893, pp. 109-110.
- T. HERBERT PRATER.** York Mid W.
Truffle Dogs [an inquiry; also stating that quantities of truffles' (? *Tuber* sp.) 'used to be found in former years under the beech trees here' (at Parlington near Aberford)]. Field, May 27th, 1893, p. 780.
- W. G. S[MITH].** York S.W.
Agaricus (Volvaria) gloiocephalus, Fr. [some remarkable examples—one 9in. high, and 4½in. across the cap—on a wool waste heap near Huddersfield, sent by A. Clarke]. Gard. Chron., June 14th, 1884, p. 777.

W. G. SMITH.

? York S.W.

A Common Edible Mushroom: *Agaricus rubescens*, P. [includes notes by Mr. J. A. Farrand, published in the 'Huddersfield Examiner' for May 2nd, 1885, on cookery of this species]. Gard. Chron., Oct. 10th, 1885, p. 460.

WORTHINGTON G. SMITH.

Lanc. W.

Disease of *Ornithogalum*. *Puccinia Liliacearum*, Derby [infesting thousands of plants of *Ornithogalum umbellatum* at Lytham; the fungus described and figured; new to Britain]. Gard. Chron., July 28th, 1888, p. 104, and fig. 11 on p. 105.

WORTHINGTON G. SMITH.

Cheshire.

Disease of Daffodils [from C. Wolley Dod's garden, at Edge Hall, Malpas; *Puccinia schroeteri* is the fungus causing it]. Gard. Chron., June 8, 1889, p. 725, and woodcut.

WORTHINGTON G. SMITH.

Linc. N.

Roses on a Willow Tree [in winter, as given in the Chronicle of Louth Park Abbey; surmise that they were the fungus *Melampsora mixta* met with on the Willow]. Athenæum, Feb. 4th, 1893, p. 107.

W. HERBERT SMITH.

Durham.

A fungi [sic] foray in Durham [finishing up with dinner at Witton-le-Wear; *Lactarius blennius*, *L. torminosus*, *L. deliciosus*, *Boletus flavus*, *B. scaber*, *B. chrysenteron*, *Agaricus muscarius*, and *A. rufescens* gathered 15th Sep., 1890, by J. P. Soutter and writer]. Young Nat., Nov. 1890, p. 216.

W. NUGENT SMYTH.

York Mid W.

Large Puff Ball [in Newton Kyme Ings Water Meadows, 3 ft. 10 ins. diam., 1 ft. 3½ ins. high, weighing 10 lbs.; *Lycoperdon* ? sp.]. Field, Aug. 30th, 1890, p. 346.

H. T. SOPPITT.

York S.W.

[Fungi noted by] The Yorkshire Naturalists' Union at Hatfield Chace [Sep. 21st, 1888; *Agaricus* (*Mycena*) *leptocephala*, *Ag.* (*Psilocybe*) *ericæus*, *Cortinarius* (*Telamonia*) *limonius*, *C.* (*Dermocybe*) *cinnamomeus*, *C.* (*Hygrocybe*) *custaneus*, *Lactarius subdulcis*, *L. rufus*, *L. glyciosmus*, *Marasmius oreades*, *Calocera viscosa*, *Phragmidium rubi*, *P. violaceum*, *Rhytisma andromedæ*, and *Hypoxylon concentricum*]. Nat., March 1888, p. 87.

H. T. SOPPITT.

York Mid W.

Yorkshire Naturalists' Union Fungus Foray [at Bramham and Harewood, 25th Sep., 1888; *Agaricus melleus*, *A. fascicularis*, *Lactarius aspideus*, *Russula cuprea* (both new to Britain), *Lact. aurantiacus*, *Russ. cærulea*, *R. granulata*, *Hygrophorus hypothejus*, *H. clarkii*, *H. calyptæformis*, noted as found, and the first two as nearly absent]. Gard. Chron., Oct. 13th, 1888, p. 420.

H. T. SOPPITT.

York S.E.

[Fungi noted by] The Yorkshire Naturalists' Union at Kirkham Abbey and Acklam Brow [4th Sep., 1889; *Agaricus* (*Lepiota*) *procerus*, *A.* (*L.*) *rachodes*, *A.* (*Mycena*) *acicula*, *A.* (*M.*) *luteo-albus*, *A.* (*Pholiota*) *pumilus*, *A.* (*Inocybe*) *obscurus*, *A.* (*I.*) *fastigiatus*, *Lactarius pallidus*, *Russula granulata*, *Puccinia sessilis*, *P. baryi*, *Chlorosplenium æruginosum*, and *Lachnea hemisphærica* mentioned as the best of the 70 fungi noted, and localities given for two of them]. Nat., Nov. 1889, p. 342.

HENRY T. SOPPITT.

Westmorland and Furness.

Puccinia digraphidis [account of experiments made on *Æcidium convallariæ* from Bowness, Windermere, and description as new of *Puccinia digraphidis*]. J. of Bot., July 1890, pp. 213-216.

H. T. SOPPITT.

York Mid W. and S.W.

Additions to West Yorkshire Fungi (Hymenomycetes) [being 31 Agaricini, 1 Polyporei, 1 Hydnei, 4 Thelephorei, 1 Clavariei, and 1 Tremella recorded as quite new; and 14 Agaricini and 7 Polyporei for which new stations are recorded; the total number of Hymenomycetes raised by these additions to 552, a small number]. Nat., Sep. 1891, pp. 279-282.

Naturalist,

- H. T. SOPPITT. York N.E.
[Fungi observed by] the Yorkshire Naturalists' Union at Hayburn Wyke [on July 11th, 1891; *Puccinia dioica*, *Melampsora repentis* (*Cæoma orchidis*), *Coleosporium senecionis*, *Peridermium pini*, and *Melanotænium endogenum*, with details of hosts and locality]. Nat., Oct. 1891, p. 291.
- HENRY T. SOPPITT. York S.W., N.E., Mid W.
Fungus Foray at Doncaster [being full description of the Y.N.U. foray in Edlington, Wadworth, and Sandal Beat Woods, with full annotated list of the 186 species found; 29 species and one var. being new to the West Yorkshire list; the notes also include *Lepiota friesii* var. *acutesquamosus* from Huddersfield, *L. cepæstipes* from Ilkley, *Polyporus squamosus* from Malton, and a number from Bolton Woods, and near Halifax and Ovenden, and Hebden Bridge, etc.]. Nat., Nov. 1891, pp. 339-348.
- HENRY T. SOPPITT. York S.W.
Strobilomyces strobilaceus in South-West Yorkshire [in a few stations near Huddersfield; new to Yorkshire; details]. Nat., Dec. 1891, p. 353.
- H. T. SOPPITT. York N.E.
A Mycological Ramble in Mid-November [1891, from Scarborough to Ringing Keld Bog; 30 species of fungi cited as found, with interesting detail]. Nat., Jan. 1892, p. 16.
- HENRY T. SOPPITT. York Mid W. and S.W.
Æcidium leucospermum DC. [and its life-history as observed at Steeton and Bolton Woods; *Puccinia jusca* prevalent in both stations, but the *Æcidium* is a species distinct from it]. J. of Bot., Sept. 1893, pp. 273-4.
- H. T. SOPPITT. York S.W. and Mid W.
Some Observations on Puccinia Bistorta, Str. [its life-history and occurrence in the Hebden Valley and at Yeadon near Leeds; the æcidiospores resemble *Æcidium bunii* DC., but the writer cannot convince himself that they are identical]. Grevillea, Dec. 1893, pp. 45-47.
- J. P. SOUTTER. Durham.
Fungus Crop of 1887 [at Bishop Auckland, and its character; *Agaricus campestris* abundant, *Lepiota rachodes* and *L. procerus* absent, *Paxillus involutus*, *Boletus edulis* and *Tricholoma personata* in plenty, the last having been hitherto scarce]. Sci. Goss., Jan. 1888, p. 22.
- WALTER W. STRICKLAND. York S.E. and N.E., Linc. N.
Notes on Fungi: with List of [228] species collected chiefly in East Yorkshire [the notes are on the difficulty of identification: the list includes numerous records for localities in N.E. Yorkshire, also *Hirneola auriculajudæ* for Walcot Hill Top, Lincs., *Angioridium sinuosum* for Lea, N. Lincs., *Cyathus vernicosus* for Walcot, *Crucibulum vulgare* for Lea, *Puccinia scorodoniæ* for wood near Scawby, *Cystopus candidus* for Frodingham, *Trichobasis rubigovera* for Appleby, Lincs., *Æcidium berberidis*, do., *Helvella ephippium* for Walcot, and *Phacidium pini* for Appleby]. Nat., June and July 1889, pp. 183-198.
- E. G. TOOKER. Isle of Man.
Report of the Botanical Section [of the Isle of Man N.H. Society for 1888; *Agaricus campestris* noted as plentiful 1887, scarce 1888]. Yn Lioar Manninagh, April 1889, p. 60-61.
- W. BARWELL TURNER. York S.W.
Microscopic Life [observed] near Askern [on May 20th, 1886; *Puccinia anemones*, *Æcidium ficariæ*, and *Podosphæra clandestina* noted, with localities]. Nat., Sep. 1886, p. 279.
- C. H. WADDELL. Westmorland and Furness.
Contribution towards a List of the larger Fungi (Hymenomycetes) growing in the District around Kendal [138 species enumerated; habitats and stations given for many of them]. Westm. Note Book and Nat. Hist. Record, March 1888, pp. 19-24.

C. H. WADDELL.

Westmorland, Furness.

List of Fungi (exclusive of the Hymenomycetes) growing in the District around Kendal [63 species, also one addition to the list previously given of Hymenomycetes; localities etc. stated]. Westm. Note Book and Nat. Hist. Record, Sep. 1888, pp. 61-63.

C. H. WADDELL.

Westmorland.

***Æcidium calthæ* Grev. near Kendal** [at Benson Knot, on *Caltha palustris*, on which in Sept. appeared *Puccinia calthæ* Lk]. Nat., Nov., 1888, p. 329.

C. H. B. WOODD.

York Mid W.

Langstrothdale Fungi [being a list of about 70 species of *Agaricus*, *Coprinus*, *Cortinarius*, *Gomphidius*, *Hygrophorus*, *Lactarius*, *Russula*, *Marasmius*, *Boletus*, *Polyporus*, *Stereum*, *Clavaria*, *Tremella*, *Lycoperdon*, *Peziza* and *Xylaria*, with localities, identified by Geo. Massee from coloured drawings; 11 species appear to be new for the Flora of West Yorkshire]. Nat., May 1891, pp. 140-142.

BIOLOGY AT LIVERPOOL.

Proceedings and Transactions of the Liverpool Biological Society, Volumes 5, 6, 7 and 8, 1890 to 1894.

THESE four moderate sized volumes continue the record of the work of this energetic provincial society in the direction we pointed out in our notice of the first four volumes of Proceedings in 'The Naturalist' for 1894. It is, perhaps, hardly to be expected that a society which deals with the entire range of biological science in its widest aspects should be always able to maintain the high level of scientific interest that can be attained by an organisation with a broader area from which to select its members, so that it would not be surprising to find that the papers in these publications dealing with local biology are of more practical value than some of the others of a more general character. This fact is, indeed, very evident from a glance at the contents of these volumes. Taking them in order, the volume of Proceedings for 1890-1 contains 11 papers and 17 plates. The papers open with the presidential address of the late Mr. T. J. Moore, who gives an interesting account of the Living Zoological Collection maintained by the 13th Earl of Derby at Knowsley, and in connection with which Mr. Moore held an official position for many years. Lord Derby was the means of introducing many rare forms of animals to England, and his work had a value far beyond the mere range of scientific discovery, for his attractive collections added a charm and interest to human life far reaching amongst the masses, one imperishable memorial of his labours being the Derby Collection in the Liverpool Museum. Mr. Moore's paper is given in two parts, the second of which appears in the volume for 1891-2. Professor Herdman has three papers in volume 5, the longest of which, giving an account of the Biological Station of the Liverpool Committee,

had previously appeared in separate form. His other papers deal with two new ascidians and a classification of the family Clavelinidæ, a group upon which Prof. Herdman can speak with the authority of extensive knowledge; and a very interesting account of the biological results of the cruise of the steam yacht 'Argo' round the west coast of Ireland in August 1890, illustrated by three plates, giving the route, and details of certain ascidians found, while Dr. Hanitsch adds an appendix dealing with the sponges collected. The foraminifera of the Mersey are dealt with by Mr. E. Burgess, who gives a list of the different species; Mr. R. J. Harvey Gibson treats of the Marine Algæ of the district, while a list of freshwater species of the group is given by Mr. W. Narramore; and Mr. J. Hornell has a report on the Polychætous Annelids. All these are valuable and useful contributions to the local fauna. Of more general matters there is an excellent paper by Mr. George Murray on the distribution of Algæ in space and time, and Dr. H. C. Sorby describes his remarkably clever and useful preparations of marine animals as lantern slides.

In the volume for 1891-2, after the address by Mr. Moore already referred to, there follows the usual report on the Biological Station at Puffin Island by Prof. Herdman, who also gives some notes on collections made by a further cruise of the steam yacht 'Argo' up the West coast of Norway; and the same writer has a lengthy note on the structure of one of the Appendicularians (*Oikopleura*), which is illustrated by four plates. This is followed by a paper on another Tunicate (*Mossia*) by Mr. Walter Garstang, M.A., in which he very fully traces its affinities with other Appendicularians. The fauna of the Liverpool marine district is elucidated by papers on Hydroida, by Mr. G. W. Wood; a Revision of the Podophthalmata and Cumacea of Liverpool Bay by Mr. A. O. Walker; and supplementary report on the Testaceous Mollusca by the late Mr. Francis Archer, B.A. On general Biology, Mr. G. B. Howes treats of the Marsipobranchii, tracing their relationship and origin among the fishes, illustrating his paper with three plates; and Prof. F. Gotch has an abstract of a paper on the interesting subject of the 'Electric Organs of Fishes.'

In the following volume for 1892-3 there is an obituary notice of the late T. J. Moore, chiefly taken from the article which appeared in 'The Naturalist.' The new President (Mr. A. O. Walker) deals in his opening address with the Fisheries of Flintshire and Denbighshire, and, bearing on the same subject, Prof. Herdman gives a practical and valuable report on the investigations carried on in connection with the Lancashire Sea Fisheries Laboratory at

University College, Liverpool. Various other papers treat of the local fauna illustrated by numerous plates. There is also a valuable suggestion made by Prof. Herdman on a proposed handbook to the British Marine Fauna.

The last of the four volumes we have to notice gives a continuation of some of the reports contained in previous transactions, Prof. Herdman's work in connection with sea fisheries being treated at considerable length. His report on the methods of Oyster and Mussel culture in use on the west coast of France had been previously indicated by him in the columns of 'Nature.' Prof. Herdman evidently finds these Transactions a ready means for the publication of his investigations, for about one-third of each volume is occupied by full reports of his work. The very profound subject of the 'Origin of Man,' which was taken by the President (Mr. John Newton) for his opening address, is only indicated in the Transactions by an abstract occupying less than two pages. A paper of exceeding interest to systematists, and one that displays extensive research and painstaking accuracy, is a 'Revision of the Generic Nomenclature and Classification in Bowerbank's British Spongiadæ.'

It is not possible in a review of volumes like these, covering such an extensive range of biological science, to do more than indicate their contents. Nor do we wish to underrate, by any adverse criticism, the useful work this society is undoubtedly performing. It would, however, be gratifying to find a more generous disposition shown in making these labours more generally accessible to outside workers who labour in the same realm of nature. The price of the volumes is such as to be prohibitive to many people who might benefit greatly by the material they contain. The society is evidently in a flourishing financial condition, with a steadily increasing balance, derived almost entirely from members' and associates' fees. Perhaps this might be further increased by fixing a more moderate price for the volumes, which at present probably rank higher in price than any other scientific publications. The actual amount received in four years for the sale of the publication is only a little over seven pounds, showing clearly that the general scientific public are deprived of them. There is no doubt that the plates add greatly to the cost, though not correspondingly to the value, for many of the drawings are exceedingly rough, and mostly diagrammatic. Notwithstanding this, our estimate of the usefulness of the work this society is doing is testified by the desire we have thus expressed to see it brought within the range of a larger number of scientific workers.

E. HOWARTH.

Naturalist.

MORE ABOUT ARENARIA GOTHICA.

WILLIAM WHITWELL, F.L.S.

SIX stations are now known for the plant discovered by Mr. Rotheray in 1889, and as it occurs in fair quantity at each, there is no longer any great reason for withholding full particulars respecting them, particularly as some peculiarity still attaches to its distribution. Only two of the stations have as yet been reported in the 'Naturalist,' Mr. Rotheray's and Dr. Silvanus P. Thompson's. The other four we owe to the botanical ardour of Mr. Reginald J. Farrer, of Ingleborough Hall; two were discovered by him in 1894, and two during the present year.

The 'Journal of Botany' for November 1894, contained a short note by Mr. Farrer, announcing that he had met with the *Arenaria gothica* Fries, at a spot far removed from the two already made known. His description was intentionally and properly vague, as of course was mine of the Thompson locality, given in the 'Naturalist' of September, 1890; and in consequence of this, a suspicion was expressed to me that Mr. Farrer had, unknowingly, simply re-discovered the station where Dr. Thompson and Miss Thompson had recognised the plant. I accordingly wrote to Mr. Farrer upon the subject, and he at once replied giving me full particulars—supplemented afterwards by personal explanations and examination of the Ordnance map together. It was made clear to me, not only that Mr. Farrer's locality was entirely independent of Dr. Thompson's, being more than $1\frac{1}{4}$ miles distant from it, but that it would have been more properly described as two localities—two spots a mile apart having been included under it. Mr. Farrer has kindly allowed me to give all details concerning these and his subsequently discovered stations.

All of the six localities are comprised within a narrow district of which the two ends, Ribblehead and Clapham, are six miles apart on a line drawn nearly due north and south. These ends mark two of the localities; the other four are on the east of this line, that is, on the Ribble side of it, and the most distant of the four is not more than a mile from the line.

The first of the six localities is already well known: the railway station precincts at Ribblehead consisting entirely of *made* ground. It stands exactly 1,000 feet above the sea.

The second locality is a little west of Selside, at a spot called Font Green. After Dr. Thompson's observation of the plant here, Mr. Rotheray visited it, and kindly supplied me with a full descrip-

tion and a plan, by which I was afterwards enabled to exactly identify the station upon the 6-inch Ordnance map. Selside is connected with Ribbleshead by an ordinary enclosed road, the distance between the two places being $2\frac{3}{8}$ miles. From Selside a somewhat devious cart-track crosses the lower moors to Clapham. Font Green is on the first portion of this track (barely a quarter of a mile from the hamlet), where it passes between two boundary-walls standing rather widely apart. A streamlet, which rises at Font Green Spring, runs near the track, eastward, for about fifty yards, and then disappears in a 'swallow,' to reappear in another fifty yards and resume its course. It is where for the first fifty yards the beck and the trackway alike traverse the open space between the walls, that the *A. gothica* is found. It occurs on both sides of the road and of the streamlet, which are from 20 to 25 yards apart, the course of the latter being somewhat winding; abundantly (in 1891) on masses of almost bare limestone with patches of moss and grass, and also, sparingly, among the loose stones and in the ruts of the cartway itself. The elevation of this station is slightly less than 1,000 feet.

Following the track across the hill towards Clapham, at $1\frac{3}{8}$ miles from Font Green, a third station is reached, and a fourth at a mile still further on. These were the two discovered by Mr. Farrer in 1894, and included by him as one in his report already alluded to. The first reached is where the road crosses, at a level of between 1,175 and 1,200 feet, the upper end of a rough shallow depression in the limestone, known as Sulber Nick. On the edges and sides of the Nick, and also along and near the track for some space before reaching it and after leaving it, the *Arenaria* is found. Then comes another *hiatus* of a mile, but when, at that further distance, the highest point of the road—1,250 feet—is reached, the species again appears in plenty, 'never far from the track.' From here it gradually thins off on the slope towards Clapham Bottoms, and a hundred yards before the open hill is left, through a gate in the boundary wall, it ceases altogether.

The hill track thus far pursued enters an actual road at Clapham Bottoms, which leads down Clapdale to Ingleborough Hall and Clapham village, leading past the mouth of the celebrated Cave and the beck which there issues to the light, and continuing along the eastern bank of the valley. Lower down, the beck runs into, or rather forms, the great lake which has replaced the former tarn and forms so grand a feature of the Ingleborough Hall grounds. Opposite to the lake, the road crosses a small depression, known as Spring Valley, tributary to the main valley below. On a small area of grass-

covered rock, in a field between the road and the lake, Mr. Farrer has here found the plant again, in some quantity: his first find of 1895. This spot is only 650 feet above the sea-level.

The foregoing—the first five—stations are, singularly, all along a line of more or less occasional travel. But the sixth, and final one hitherto, differs in this respect. On the third of July Mr. Farrer wrote to me:—‘I have found the *Arenaria* far away from any house or track, plentifully on broken flags about quarter of a mile above Sulber Nick. The plant here grows much more erect, with *Sedum villosum*, *Arenaria verna*, *A. serpyllifolia*, *Sagina apetala*, and *S. nodosa*. This is a remote spot almost on the (actual) moors, where it surely cannot have been introduced.’ This last locality is at an elevation of 1,250 feet. It is on the direct line of ascent of the mountain, and the nearest track to it is that which, as already stated, crosses the head of Sulber Nick.

By the kindness of Mr. Rotheray, Miss Thompson, and Mr. Farrer, I have specimens from all of the six localities, and those from the last do show a more erect and slender habit than the rest. But Mr. Farrer says that he has observed somewhat similar ones elsewhere. The difference, however, is not great.

Leaving Ribblehead out of the question, the five quite natural stations for the *A. gothica* are very similar in their characters. The tract occupied by them is entirely one of the carboniferous limestone. They are spots where this forms small level plateaux of irregular surface, with a scanty supply of earth in their frequent hollows. *Sagina nodosa* and *apetala*, *Arenaria verna* and *serpyllifolia*, *Linum catharticum*, *Cerastium vulgatum*, and sometimes common grasses, form the companion vegetation. To these must be added *Primula farinosa* at Sulber Nick, and *Sedum villosum* at the higher moorside location.

Considerable search has been made for this *Arenaria* in other parts of the great limestone district of Craven and Ingleton; by Mr. Rotheray and Mr. Farrer on the Penyghent or eastern side of the Ribble Valley, and by Mr. Farrer on the hills above Ingleton, on Moughton Scar and the hills between it and Helln Pot, on the limestone tracts above the Pot, and on the Malham plateau. But hitherto, it has not been met with outside of the narrow region west of the Ribble, which I have indicated.

The earliest date of which I have any knowledge of the *A. gothica* flowering is given by a specimen received from Miss Thompson, in full bloom, gathered by her on the 6th May, 1890. Mr. Farrer obtained flowering plants on May 10th this year, and he observed them in 1894 as late as December 3rd.

In the original description of Fries, *Arenaria gothica* was stated to be an annual. This occasioned some difficulty at first, but it has been removed by the actual cultivation from Swedish seeds, by my friend Mr. Arthur Bennett, F.L.S., in London, and by Mr. Linnarsson at Sköfde, of undoubted plants of the species. These proved to be biennial as well as annual, autumnal plants living till the following year, laden with empty capsules—exactly like our Yorkshire form, and then flowering again. Yorkshire seeds and Swedish seeds, grown side by side by Mr. Bennett, proved alike in all respects. (Note by Mr. Bennett in 'Journal of Botany,' Nov. 1892; also a later one, to which I cannot now give the reference.) Mr. Bennett's original determination of Mr. Rotheray's specimens has thus been fully established.

NOTES AND NEWS.

We are glad to call the attention of such of our readers as are interested in the subject, to the very interesting and suggestive paper by Mr. J. Newton Coombe on 'The Reproduction of the Diatomaceæ,' published in French and English in 'Le Diatomiste' of March and June 1895. The paper is accompanied by numerous drawings made with the camera lucida, from actual examples, of the conjugating process showing the megafrustules, and of what may be called the 'swarming' of minute frustules, as well as of cists containing diatoms, which the author supposes to be the work of a Rhizopod. It is gratifying to see so able an observer as Mr. Coombe in this field, and we hope he may be able to devote more of his very valuable spare time to further researches in the same direction.

The Rev. Charles Crawshaw, M.C.S., of Saltburn-by-the-Sea, has been making of late some interesting observations on the Molucca, or King Crab (*Limulus longispinus*), in captivity. Early in June he received from America a fine specimen, and having extemporised an aquarium, had the animal under observation for several weeks. The length of this Crustacean or Entomostracean is 22 inches, the cranial buckler from 13 to 14 inches at the widest part, and two inches in thickness at the anterior edge. The styliform tail, which is eight inches in length, can be erected at a right angle over the back of the animal, and pointed in any direction by the powerful muscles which attach it to the body. It appears to serve as an effective lever when the animal is overturned, and by throwing the balana upon the rounded part of the buckler, enables it to recover its natural position. When *Limulus* is purposely laid upon its back, the rigid tail seeks for some point of vantage, and begins to lift the shell. Upon the flat bottom of the tank this feat appeared a little difficult, but upon an uneven surface with declivities, the animal would easily roll over. *Limulus* is sluggish in its habits, creeping slowly, and moving without any apparent means, the feet being entirely concealed by the great rounded shell which overlaps all the organs. Mr. Crawshaw has not ascertained the proper food of this Crustacean; a variety has been offered dead and alive, but so far as observed everything has been refused. The curator of a neighbouring museum suggested sand worms, these certainly disappeared—probably escaped, but leaving no evidence that they had been eaten. The King Crab is so rarely seen alive, and records of its habits are so few, then a naturalist would be well repaid who would turn his attention to it, and make a study of this singular creature under favourable conditions. *Limulus* would make an interesting addition to the marine aquaria of this country open to the public. It may be imported without difficulty, and will survive a long railway journey even in warm weather, packed in damp seaweed, and would probably continue to live and grow where suitable arrangements existed; Mr. Crawshaw's have been extemporised and very defective, and the supplying of fresh sea-water a great labour.

THE CONSTITUENTS OF THE NORTH LANCASHIRE FLORA, 1597(?) - 1893.

LISTER PETTY,
Ulverston.

SEVENTH PAPER.

Geum rivale L. (continued).

1843. Jopling, Furness and Cartmel, 264. Near the Duddon and Bardsea, Aiton. 1874. J. of B., Miss E. Hodgson. No locality.

Fragaria vesca L. C.F.R., 1548.

1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality.

Fragaria elatior Ehrh.

1874. J. of B., Miss E. Hodgson. In a narrow high-banked lane near the 'Falls' Farm, near Ulverston, Miss Parker. 1885. Baker's Flora, 79. By a brook in the Vale of Newlands, near Ulverston, Miss Parker. This latter locality is better known in the district as 'Newlands Bottom.'

Potentilla Fragariastrum Ehrh. C.F.R., 1633.

1874. J. of B. Miss E. Hodgson. No locality.

Potentilla verna L. C.F.R., 1641.

1885. Baker's Flora, 78. Near Grange, Rev. H. Higgins.

Potentilla Tormentilla L. *P. sylvestris* Neck. C.F.R., 1538.

1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson (P. T. of Schenk). No locality.

Potentilla procumbens Sibth. C.F.R., 1677.

1874. J. of B., Miss E. Hodgson, Graithwaite Woods. 1885. Baker's Flora, 78. Coniston. Low Wood.

Potentilla reptans L. C.F.R., 1538.

1874. J. of B., Miss E. Hodgson. No locality.

Potentilla Anserina L. C.F.R., 1568.

1843. Jopling, Furness and Cartmel, 263. In swampy meadows frequent. 1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality. 1885. Baker's Flora, 77. 'Ascending from the coast level at Flookborough,' J. G. Baker.

Potentilla argentea L. C.F.R., 1632.

1843. Jopling, Furness and Cartmel, 264. On the shore near Conishead Bank, Aiton. 1885. Baker's Flora, 77. Aiton repeated.

Potentilla fruticosa L. C.F.R., 1670.

1843. Jopling, Furness and Cartmel, 264. Has been found near Ulpha, Aiton. 1885. Baker's Flora, 77. Aiton repeated.

Potentilla comarum Nestl. = *P. palustris* Scop. C.F.R., 1597.
Comarum palustre L.

1796. Withering, ed. iii., 479. Marl Pits near Dalton, Atkinson ; and repeated 1801, ed. iv., 470, and in all subsequent editions. 1869. Aspland's Guide. Within six miles of Grange, A. Mason. 1874. J. of B., Miss E. Hodgson. Peat trenches, Plumpton ; Urswick Tarn. 1885. Baker's Flora, 78. Ascending from coast level at Plumpton, near Ulverston.

Alchemilla arvensis Lam. C.F.R., 1570.

1864. Linton, Lake Country, 322. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson, no locality.

Alchemilla vulgaris L. C.F.R., 1548.

1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson, no locality.

Agrimonia Eupatoria L. C.F.R., 1551.

1843. Jopling, Furness and Cartmel, 264. Near Bardsea, Aiton. 1861. Phytologist, 258. Roadside between Humphrey Head and Cartmel, C. J. Ashfield. 1864. Linton, Lake Country, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality.

Agrimonia odorata Mill. C.F.R., 1853.

1885. Baker's Flora, 87-8. Shore of Windermere, near the Ferry Inn, J. G. Baker.

Poterium Sanguisorba L. C.F.R., 1597.

1796. Withering, ed. iii., 493. Brathay meadows . . . and elsewhere in Furness Fells, Atkinson. And repeated in 1801. Withering, ed. iv., 483, and in all subsequent editions. 1805. West., Antiq., ed. Close, 378. 1830. Otley, Guide, ed. iv., 145. On Kirk-head, near Kents Bank ; and repeated 1834, ed. v., 144. 1837. Ed. vi., 148. 1843. Ed. vii. 1849. Ed. viii., 137. 1842. Evans, Furness and F. Abbey, 26. Atkinson and Otley repeated. 1843. Jopling, F. and C., 264. Furness Fells, Aiton ; Copse Head, Humphrey Head, Wilson. 1864. Linton, Lake Country, 322. Furness Fells. 1874. J. of B., Miss E. Hodgson. Plumpton quarry, near Great Spring pit ; roadsides above Grange. 1885. Baker's Flora, 88. Islands of Windermere, W. Foggitt. Humphrey Head and hills in Furness, Aiton. J. G. Baker. Miss Hodgson repeated. 1890-93. The Grange Guides. 1892. Haviland, Distrib. Disease, 376.

Poterium officinale Hooker, f. C.F.R., 1548.

Sanguisorba officinalis L.

1869. Aspland's Guide. Within six miles of Grange, A. Mason. 1874. J. of B., Miss E. Hodgson. Swampy meadows S. of Little

Langdale Tarn ; on the banks of the Brathay, near Windermere, Miss A. Hodgson.

Rosa spinosissima L. C.F.R., 1597.

Rosa spin. : Var. 3.

1796. Withering, ed. iii., 465. Sandscale Haws. Atkinson. And repeated in 1801. Withering, ed. iv., 456. 1805. West, Antiq., 378. 1812. Withering, ed. v., 568. 1818. Ed. vi., 613. 1830. Ed. vii., 612. 1842. Evans, Furness and F. Abbey, 26. 1843. Jopling, F. and C., 263. Atkinson repeated, and Conishead Bank, Aiton ; Roudsea Wood, Cartmel, Wilson. 1861. Phytologist, 237. Humphrey Head, C. J. Ashfield. 1874. J. of B., Miss E. Hodgson. On all the shores ; inland lanes both of Furness and Cartmel ; Brathay Woods ; near Birks Bridge, on the Duddon. 1885. Baker's Flora, 85. 'Inland in many places round Windermere.' None localised.

Rosa Sabini Woods. C.F.R., 1808.

1885. Baker's Flora, 86. Abundant in several places about Cartmel, J. Sidebotham.

Rosa mollis Sm. C.F.R., 1804.

1874. J. of B., Miss E. Hodgson. Below Mungeon, Cartmel ; near Newfield, Seathwaite.

Rosa tomentosa Sm. C.F.R., 1696.

1874. J. of B., Miss E. Hodgson. South side of Little Langdale Tarn ; woods between Stott Park and Grathwaite ; abundant on Leybarrow Crag, near Penny Bridge ; Tottlebank lanes near Colton. 1885. Baker's Flora, 86. Ascending to 300 yards over Coniston, J. G. Baker.

Rosa rubiginosa L. C.F.R., 1597.

1843. Jopling, Furness and Cartmel, 263. Occasionally in hedges and thickets. 1885. Baker's Flora, 86-7. Aiton repeated.

Rosa canina L. (aggregate). C.F.R., 1538.

1843. Jopling, Furness and Cartmel, 263. Common in hedges throughout Furness, Aiton. 1864. Linton, Lake Country, 322. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. 'Typical form frequent.'

Rosa sphærica.

1874. J. of B., Miss E. Hodgson (sub *R. sphærica* Dumort., which I do not know, so have placed it here). Rosshead hedges near Ulverston ; near Haverthwaite ; roads between Cark and Cartmel ; Foxfield Bank.

Rosa dumalis Bechst.

1874. J. of B., Miss E. Hodgson. Rosshead hedges near Ulverston ; Greenodd, rocks by the shore.

Rosa urbica Leman.

1874. J. of B., Miss E. Hodgson. Lanes about Ulverston; woods near Broughton.

Rosa frondosa Steven.

1874. J. of B., Miss E. Hodgson. Near the railway bridge, Haverthwaite; Foxfield Bank. 1885. Baker's Flora, 87. 'Miss Hodgson and I both found *frondosa* in Furness,' J. G. Baker.

Rosa subcristata Baker.

1874. J. of B., Miss E. Hodgson. Rosshead hedges near Ulverston; roadside below Mungeon Ghyll, Cartmel; roadside between Flookborough and Humphrey Head.

Rosa coriifolia Fries.

R. bractescens Woods, (1818. *Linn. Trans.* vol. 12, 216), Ulverston, Lancashire.

1828. Smith, *Eng. Fl.*, ed. ii., II., 392. About Ulverston, Mr. Woods.¹ And repeated in 1835, Hooker, W. J., *Brit. Fl.*, ed. iii., 243. 1835. Watson, N.B.G., i., 314, 'Eng. Fl.' 1838. Hooker, *Fl.*, ed. iv., 201. 1842. Bab. *Man.*, ed. i., 101. 1847. Bab. *Man.*, ed. ii., 110. 1850. Hooker and Arnott, ed. vi., 131. 1851. Bab. *Man.*, ed. iii., 109. 1855. Hooker and Arnott, ed. vii., 140. 1856. Bab. *Man.*, ed. iv., 112. 1860. Hooker and Arnott, ed. viii., 138. 1861. Bab. *Man.*, ed. v., 116. 1864. *Naturalist*, 98-9, repeated by J. G. Baker. 1864. *Eng. Bot.*, ed. iii., III., 220. 1867. Bab. *Man.* ed. vi., 125.

Rosa Reuteri Godet.

1874. J. of B., Miss E. Hodgson. On the road to Low Skathwaite, north of Ulverston; road-sides above Grange.

Rosa arvensis Huds. C.F.R., 1667.

1864. Linton, *Lake Country*, 321. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. By the old well at Bouth; Birkdault, Haverthwaite. 1885. Baker's Flora, 87. Foot of Windermere at Newby Bridge; at Coniston; abundant about Grange, J. G. Baker.

Rosa alpina L.

1846. *Phytologist*, 427. 'Introduced—many bushes on the Bell Grange Woods on west side of Windermere,' W. Borrer.

Pyrus torminalis Ehrh. C.F.R., 1597.

1843. Jopling, *Furness and Cartmel*, 264. Plumpton Woods, Aiton. 1885. Baker's Flora, 90. Aiton repeated.

Pyrus Aria L. *Cratægus Aria*. C.F.R., 1570.

1700. Leigh, *Nat. Hist. Lancs. and Ches.*, 95. 'All the services we have seen growing in great quantities upon the rocks near

¹ Joseph Woods. See Britten and Boulger's Index, 185.

Rougham.' 1805. West., ed. Close, 377. On the rocks above Cartmel Wells, Atkinson. 1830. Otley, Guide, ed. iv., 146. Humphrey Head (this locality is the same as Atkinson's). And repeated in 1834. Otley, ed. v. 1835. Watson, N.B.G., i., 301. Otley repeated and named. 1837. Otley, ed. vi., 144. 1842. Wordsworth, Scenery, 27. 1843. Jopling, Furness and Cartmel, 264. Otley repeated, and 'Copse Head, Wilson.' 1844. Otley, ed. vii., 152, and 1849, ed. viii., 142. 1861. Phytologist, 237. Humphrey Head, west side, C. J. Ashfield. 1862. Phytologist, 259. Dr. Windsor. 1864. Linton, Lake Country, 322. 1869. Aspland's Guide. Within six miles of Grange, A. Mason. 1874. J. of B., Miss E. Hodgson. Typical *Aria* of Boswell Syme, Cliffs, Plumpton Shore, Ulverston. Several trees of this occur in that old Wood (i.e., Plumpton Wood) and are gradually scarped down by the high tides and winds. 1885. Baker's Flora, 90. Humphrey Head. 1892. Haviland, Distrib. Disease, 376. No locality. Rougholm = ? Leigh's Rougham is a point west of Humphrey Head; but he probably meant Humphrey Head.

Pyrus Aucuparia Gærtn. C.F.R., 1562.

1864. Linton, Lake Country, 322. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality.

Pyrus communis L. C.F.R., 1562.

1843. Jopling, Furness and Cartmel, 264. In hedges near Ulverston, Aiton. 1874. J. of B., Miss E. Hodgson. A fine old tree . . . near the shore, Bardsea. 1885. Baker's Flora, 90. Aiton and Miss Hodgson repeated. This tree now gone (1895).

[Pyrus Pyraster L.

It is stated in 1864 Eng. Bot., ed. iii., III., 251, that this variety extends so far north as the Lake District, but no proof is given.]

Pyrus Malus L. C.F.R., 1562.

1864. Linton, Lake Country, 322. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. Not infrequent.

Pyrus tomentosa.

1874. J. of B., Miss E. Hodgson. Plumpton Woods; Hill Top, Colton; Barrow End Cliff, near Greenodd. 1885. Baker's Flora, 90. 'Miss Hodgson cites several stations in Furness.'

Pyrus acerba DC.

1874. J. of B., Miss E. Hodgson. Sea Wood, Bardsea; in a hedge near Tottlebank Chapel.

Pyrus germanica L. C.F.R., 1597.

Mespilus L.

1874. J. of B., Miss E. Hodgson. Two trees in a high old hedge between Walney Church and North Scale. 1885. Baker's Flora, 89. Miss Hodgson repeated.

Cratægus Oxyacantha (aggregate). C.F.R., 1562.

1842. Evans, Furness and F. Abbey, 26. One of the principal underwoods. 1864. Linton, Lake Country, 322. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. No locality.

Cratægus monogyna Jacq.

1874. J. of B., Miss E. Hodgson. 'The more usual form.' 1885. Baker's Flora, 89-90. 'All the Lake plant is *C. monogyna* Jacq.' J. G. Baker.

Amelanchier canadensis var. **Botryapium** Willd.

(?). On one of the Windermere islands, W. Foggitt. 1894. Naturalist, 55, repeated, and in 1894. Speight's Nidderdale, 36. In each case by F. A. Lees. These dates are a few months beyond my limit, but being unaware of the original date or place of first record, include now.

Saxifraga stellaris L. C.F.R., 1641.

1796. Withering, ed. iii., 402-3. Coniston Fells, Rev. Mr. Jackson. 1801. Ed. iv., 393. Mountains in Lancashire. Woodward and Jackson repeated. 1805. Turner and Dillwyn, Bot. Guide, ii., 368. Jackson repeated. 1812. Withering, ed. v., 494-5. Jackson and Woodward repeated, also in 1818. Ed. vi., 532. 1830. Ed. vii., 527-8. 1835. Watson, New B.G., i., 301. Jackson's locality repeated, but ascribed to 'B. G.' 1844. Wordsworth, Scenery, 23. Coniston Old Man, T. Gough. 1874. J. of B., Miss E. Hodgson [Wrynose] and a little South of the three shire stones; Walna Scar. 1885. Baker's Flora, 101-2. Jackson and Miss Hodgson repeated.

Saxifraga aizoides L. C.F.R., 1670.

1796. Withering, ed. iii., 404-5. In Furness Fells, near the top of . . . the Old Man; in moist places, Atkinson, and on p. 403. Coniston Fells, Jackson, and both repeated 1801. Ed. iv., 394-5-6. 1805. West, Antq., ed. Close, 379. 1812. Withering, ed. v., 495 and 498. 1818. Ed. vi., 532 and 536. 1830. Ed. vii., 528 and 530-31. 1835. Watson, N.B.G., i., 301. Jackson's and Woodward's localities repeated, but ascribed to 'B.G.' 1837. Baxter, Phænog. Bot., iii., 187. Atkinson and Jackson repeated. Coniston Fells, Miss Mary Beever. 1842. Wordsworth, Scenery, 23. Repeated by T. Gough. 1842. Evans, F. and F. Abbey, 26. 1843. Jopling, Furness and Cartmel, 262—as *Leiogyne aizoides*—has been found on the Old Man and hills around, Aiton. 1864. Linton, Lake Country, 323. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. Cockley Beck, near the copper mines; Dobby Shaw, Dunnerdale Fells. 1885. Baker's Flora, 102-3. Atkinson

and Miss Hodgson repeated. **1892.** Naturalist, 81. Coniston, about Tilberthwaite; below Levers Water. L. Petty.

***Saxifraga tridactylites* L.** C.F.R., 1597.

[**1796.** Withering, ed. iii., 406. Rare in Lancashire. Mr. Caley, and repeated in later editions]. **1854.** Phytologist, iii. Furness Abbey.* **1861.** Phytologist, 258. Wraysholme Tower and walls close by, C. J. Ashfield. **1874.** J. of B., Miss E. Hodgson. On walls, frequent. **1885.** Baker's Flora, 103. 'Ascending from shore level at Kents Bank.' **1890-93.** The Grange Guides. Included from unpublished stations, but it is by no means scarce in Grange and neighbourhood.

***Saxifraga granulata* L.** C.F.R., 1568.

1843. Jopling, Furness and Cartmel, 262 (as *Leiogyne*). Rare. Near Conishead Priory and the Duddon, Aiton. **1874.** J. of B., Miss E. Hodgson. Dragley Beck Wood, Ulverston. **1885.** Baker's Flora, 103. Aiton and Miss Hodgson repeated.

***Saxifraga hypnoides* L.** C.F.R., 1640

1796. Withering, ed. iii., 403 (sub *S. stellaris*). On Coniston Fells, Rev. Mr. Jackson. And repeated **1801**, ed. iv., 394. **1805.** Turner and Dillwyn, Bot. Guide, II., 368. **1812.** Withering, ed. v., 495. **1818.** Ed. vi., 532. **1830.** Ed. viii., 534. **1835.** Watson, New B.G., has 'B.G.' instead of Jackson. **1842.** Wordsworth, scenery, 23, T. Gough. **1843.** Jopling, Furness and Cartmel, 262. On moist rocks in N. of Furness, scarce. Aiton. **1882.** J. of B., 347. Rills on the Old Man, W. F. Miller. **1885.** Baker's Flora, 103-4, 'Coniston Old Man; first gathered by Mr. Jackson.'

***Chrysosplenium oppositifolium* L.** C.F.R., 1570.

1843. Jopling, Furness and Cartmel, 262. Brook in Lane Park, Cartmel, Wilson; and frequent in brooks in Furness, Aiton. **1864.** Linton, Lake Country, 323. 'Common,' no locality. **1874.** J. of B., Miss E. Hodgson. Frequent in rills.

***Chrysosplenium alternifolium* L.** C.F.R., 1666.

1796. Withering, ed. iii., 401-2. In a wood at Colton Beck Bridge, Rev. Mr. Jackson. And repeated **1801**. Ed. iv., 392-3. **1805.** Turner and Dillwyn, Bot. Guide, II., 368. **1812.** Withering, ed. v., 493. **1818.** Ed. vi., 531. **1830.** Ed. vii., 526. **1835.** Watson, N.B.G., i., 301. Jackson repeated but ascribed to 'B.G.' **1843.** Jopling, Furness and Cartmel, 262. By the side of the Duddon, Scarce, Aiton. **1874.** J. of B., Miss E. Hodgson. Kirkby (in Furness), rare, Mrs. Wannop. **1885.** Baker's Flora, 104. Jackson and Aiton and Mrs. Wannop repeated.

* Joseph Robson, A.L.S. See Britten and Boulger's Index, 145. The N. Lancs. stations of his quoted in these papers are from 'Plants of Gosforth, Cumb.,' in Phytologist, 1854.

Parnassia palustris L. C.F.R., 1597.

[*Gramen parnassi* Ger. 1597. Gerard, Herbal, 840, and in ed. of 1633, and 1636. 'Groweth plentifully in Landsdale and Craven.' This probably *not* North Lonsdale. 1666 and 1667. Merrett, Pinax, 56, in Lancashire. 1762 and 1778. Hudson, Fl. Ang. Lancast. *frequens*, but no localities.]

1843. Jopling, Furness and Cartmel, 262. Frequent in swampy meadows in Furness and Cartmel, Aiton and Wilson. 1864. Linton, Lake Country, 320. Coniston. 1869. Aspland's Guide. Within six miles of Grange, A. Mason. 1878. J. of B., 88, Mr. James Britten writes that there are specimens of this in Miss Hodgson's herbarium, in Herb. Brit. Mus., from Ghyllbanks, Ulverston; Plumpton Moss; top of Hawkshead Hill. 1885. Baker's Flora, 104. Everywhere common in swamps.

Ribes Grossularia L.

1864. Linton, Lake Country, 323. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson. Frequent in woods and road-side hedges. 1885. Baker's Flora, 98-9. 'Ascending from Humphrey Head' (to various heights in neighbouring counties).

Ribes alpinum L. C.F.R., 1688.

1864. Linton, Lake Country, 323. Coniston, rare. 1885. Baker's Flora, 98. Linton repeated. Shore of Windermere near the Ferry Inn, J. T. Foggitt.

Ribes rubrum L. C.F.R., 1568.

Type—1864. Linton, Lake Country, 323. 'Common,' no locality. 1874. J. of B., Miss E. Hodgson, Newby Haw, Haverthwaite; Hearings Wood, Ulverston; Bank House Ghyll, Kirkby. 1885. Baker's Flora. Miss Hodgson repeated. 1892. Naturalist, 83. Coniston. Side of Yewdale Beck; in road-side hedge between Hannakin and Hawkshead. In fruit in each case. L. Petty.

[Ribes rubrum VAR.

1666. Merrett, Pinax, 104. *Ribes fructu parvo*. Many places in Lancashire. A MS. note in B.M. copy, 'Those called Roasan trees.' Locality repeated in 1667, p. 104. 1724. Ray, Syn., ed. iii. Placed amongst the 'Plant. dubiarum' by Dillenius. 1793. Milne and Gordon, i., 352. Merrett repeated. 1796. Withering, ed. iii., 264, as 'var. 3, small currants . . . many places in Lancashire,' and repeated in later editions. 1846. Phytologist, 519. Dr. Bromfield refers Merrett's plant to *R. sylvestre* Lam. On page 520 the Doctor says, 'I have little doubt that our wild southern variety is identical with the *R. f. p.* of Merrett and Ray's Synopsis.']

ALLERSTON.

REV. W. C. HEY, M.A., M.C.S.,

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AT the foot of the moorland hills that reach from Seamer to Pickering lies a string of villages. The sheltered situation and the abundance of pure water rushing in sparkling becks from the moors above, were doubtless the attractions that induced so many early settlers to place their abode here—mostly Saxons—Ayton, Ruston, Brompton, Snainton, Ebberston, Allerston, Wilton, Thornton. Just once in Wykeham we get a Scandinavian word. Some of these villages extend parallel into the hill above, others run at right angles to it, and these last, from the irregularity of the ground on which they stand, and from the fact that the omnipresent beck runs dancing and chattering right down the street side, crossed here and there by little rude bridges, are naturally the more picturesque. To this class belong Ebberston, with its noble hanging woods and its tradition of King Alfred's hiding-place, and Allerston with its tall church tower and beautiful glade above. Brilliant were the cottage gardens in July as I rode up the climbing street—brilliant with masses of the scarlet Turk's Cap Lily (*Lilium chalcedonicum*), and joyously danced the stream, full yet clear, and a source of endless pleasure to ducks and dabbling children. The pleasant little inn stands at the top of the village, and its yard opens immediately on wild ground—marsh and rock, and fern and flowers. After the heavy rains of the fortnight past, all was infinitely fresh and beautiful in the breezy sunshine. A steep slope was so carpeted with Wild Thyme, amid which the crimson Betony reared a thousand glowing spikes that I felt sure this must have been the very sight the poet Keats had in his mind when he sang of

Hill flowers running wild
In pink and purple chequer.

But there was no monotony in this natural mosaic. Next to the crimson came a stretch of blue, Harebells and *Scabiosa columbaria*, and its darker sister, the Devil's Bit Scabious. Among the *Scabiosa columbaria* was one plant which bore pure white flowers. The Mouse Ear Chickweed, and *Pimpinella saxifraga* added pale gold and white to this rich pavement, and two of nature's trimmest flowers, *Erythræa centaurium* and *Hypericum pulchrum* displayed their delicate beauty.

A quarry I passed was brilliant with the crimson heads of the Nodding Thistle, and golden tufts of *Crepis virens*, and the banks beyond were clothed with the pungent Wood Sage (*Teucrium scorodonia*). Passing into a wild upland field, my attention was divided between the delicate pink-gilled Mushrooms that dotted the turf at my feet and the glorious view extending over miles and miles of vale and wold—a view which on this day was more beautiful than common, for the torrential rains had formed long reaches of water in the low country which glittered like mirrors in the slanting sunshine, and put one in mind of the old days when it was part of the duties of the monks at Flixton Spital to guide travellers across the morass that lay between the wold and the northern moors. This field was strewn with flat stones, and under them lurked an extraordinary profusion of Geodephaga. As many as a dozen *Calathus cisteloides* would be found under a single fragment. The tawny *Amara fulva* too was here, coloured no doubt protectively to harmonise with the sand among which it lives. Another insect common here was *Harpalus æneus* in a form which prevails all over this district, but is not alluded to by Canon Fowler. The apex of the elytra is not deeply emarginate but only sinuate even in the males. As the depth of the emargination is often made the specific distinction of *Harpalus æneus*, this variety requires special attention, and indeed is recognised by Dawson as ‘Variety γ , elytris apice leviter sinuatis.’ In a nest of Red Ants I found the golden tufted *Staphylinus stercorarius*, a fine addition to the Yorkshire list.

I don’t know which I left most reluctantly, the spacious sunlit view, the beetle-haunted stones, or the mushrooms; but we are only mortal, and under the pressure of this weakness I sauntered back to the inn and its hospitable landlady, and then rode slowly home by the waving cornfields and plum-orchards of Snainton and the whispering Aspens that line the streams by Wykeham Abbey.

NOTES—BOTANY.

Another Teesdale Locality for *Equisetum pratense* Ehrh.—In May 1888, my father found this fruiting plentifully in a bog at an altitude of nearly 1,600 feet on the plateau of Cronkley Fell, towards the ridge of Mickle Fell. This station is a few miles to the W.S.W. of and much higher up than the old station near the river below the High Force.—W. WEST, Jun., St. John’s College, Cambridge, August 8th, 1895.

***Typha latifolia* at Arncliffe, Wharfedale.**—Three or four plants of the ‘Reed-mace’ are now to be seen with their tufted spikelets in full bloom in the old disused mill-pond at Arncliffe. It is a common plant but I think this station for it ought to be recorded, as Mr. Arnold Lees in his Flora of West Yorkshire gives 300 feet as the extent of its range, and he adds ‘absent in the higher parts of all the Dales.’ Arncliffe is 750 feet above the sea.—W. A. SHUFFREY, Arncliffe Vicarage, August 5th, 1895.

CAREX CÆSPITOSA L. Fr. IN YORKSHIRE.

ARTHUR BENNETT, F.L.S.

UNDER this name in our old Floras, *vulgaris*, *stricta*, and *acuta* have passed, and although in the first edition of the 'Species Plantarum' (1753), the name is not quite free from ambiguity, still the Scandinavian botanists from Fries to the present time give the name to a tufted (cæspitose) strict habited plant, with leafless flower stems, bracts with broad amplexicaul bases, neat regularly arranged fruit spikes (much like *C. stricta* Good. on a small scale), the glumes broad, generally shorter than the fruits, fruits with minute impressions all over and nerveless, or nearly so. Here it may be said that Boott, in his splendid work on the genus *Carex*, notes that Fries' words must not be taken too literally where he says 'enervis,' and this I have myself seen on his specimens.

The discovery of this as a Yorkshire plant was made in the following way. Mr. Duncan lately sent me a very puzzling *Carex* from the Outer Hebrides, and turning over my *vulgaris* sheets to try and connect an odd character his plant showed, on the second sheet Mr. Percival's specimen at once said: 'I saw *cæspitosa*,' and so it proved.

In the summer of 1884, Mr. Percival sent me many *Carices* from Carperby in Wensleydale, this among them, and it has remained unrecognised ever since.

Mr. Beeby gathered in Unst, Shetland a *Carex* that was named by Dr. Lange '*C. cæspitosa*, L.'; it occurred sparingly by the Loch of Cliff.

Only a couple of weeks before this my friend, Mr. Miller, sent me *Carex fusca* All. (= *C. Buxbaumii* Wahl.), from Westernness in Scotland, where it occurs in abundance around a Loch in the district of Arisaig; and I believe Mr. Duncan's Hebridean *Carex* is a new one to our Flora.

Abroad, the distribution of *C. cæspitosa* is:—in Europe, Scandinavia, Germany in the wide sense, throughout Russia, Holland, doubtful for Switzerland, Iceland, the Faroes; in Asia, across Siberia to Behring Straits, Davuria; in America, indicated for Greenland by Drejer, but not lately confirmed, in Canada?, and the United States?; and perhaps in Australia, but the specimens look different.

From doubts as to the meaning that Linnæus applied in some of his works, authors have re-named this species under *C. pacifica* Drejer, Fl. Ex. Hafn. 292, 1838, *C. Drejeri*, O. F. Lang, 'Flora,' 548, 1843, and there are several other names that have been given in local continental Floras.

In Sweden, besides the ordinary (and there very abundant) form, it occurs as a tall stiff form, with long leaves, var. *strictiformis* Almquist!; again in a form that may really be only a monstrosity, i.e., var. *retorta* Fries (Linn. Veg. Scan. p. 227, 1846).

C. vulgaris Fries (*Goodenovii* Gay) is an extremely variable species, and very difficult to correlate its forms from various parts of the world; but everywhere it seems to be a plant that produces long stolons (to some extent this is modified in the var. *juncella* Fr.). The fruit is always strongly *nerved* when mature, and there is generally a more scattered habit of growth than any form of *cæspitosa* takes.

Although reported for N. America by Boott, Boccheler, and Drejer, there is now great doubt whether any form of it so occurs (Bailey, 'Studies of Carex').

In Sweden it is called Tuf-Stan, in Denmark Tue-Stan, both having the same meaning, i.e., Knoll or Hillock Carex.

Eleven years have passed since I received these specimens, and it is possible I have not seen them since, until just lately; it shows how easily a good thing may be passed, and yet directly I saw it, it seemed to 'speak' to me as '*cæspitosa*.'

NOTE—COLEOPTERA.

Cychrus rostratus and Pristonychus terricola in South Yorkshire.—My first acquaintance with *Cychrus* dates so far back as March 27th, 1884, when I was shewn two specimens which had been taken at Worsborough Reservoir, 2½ miles from Barnsley. Although I searched diligently for it in that locality and elsewhere around Barnsley, my efforts were unrewarded. On Good Friday, April 8th, 1887, I came upon the remains of one at Ardsley, two miles from Barnsley. It was not until 1890 that living specimens fell to my lot, when, on Good Friday in that year, I found them quite commonly in Edlington Wood. This year a specimen was brought to me which had been taken at Conisborough, and to-night I had the pleasure of picking up a fine female which was exploring my dining-room, and I heard with interest the (for the size of the insect) loud noise it is capable of making. As the only records for South-West Yorkshire in Rev. W. C. Hey's list are Halifax and Walton, both some distance from Barnsley, the additional records for this uncommon insect are worthy of note: Doncaster, Conisborough, Barnsley, Ardsley, Worsborough—and also the place of capture in the last recorded instance. Such species as *Calathus cisteloides*, *Harpalus ruficollis*, and *Pterostichus* (*Steropus*) *madidus*, are very common, although not welcome visitors to our house, and frequently by accident or design come to an untimely end, but this is the first occasion on which *C. rostratus* has come under my notice as a house explorer. Another beetle, *Pristonychus terricola* (in Hey's list, recorded from Bradford Borough only) was to me a rarity until I took the present house. My earliest specimen is dated July 3rd, 1888, and was taken in the cellar of a house at Wath-on-Dearne. I never saw another until June 6th, 1893, when I took two specimens in the shop here in Barnsley. In the house in which I now live, and the outhouses adjoining, it is by no means uncommon. To those who love musty records and dry statistics, these notes from one of themselves will be of greater or lesser interest.—E. G. BAYFORD, August 8th, 1895.

P.S.—August 9th, 1895. Have just noticed in a specimen of *Pristonychus terricola* a peculiarly pungent odour, strongly reminiscent of glacial acetic acid. I cannot remember having seen this mentioned before.—E.G.B.

THE STORY OF THE LINCOLN GAP.

F. M. BURTON, F.L.S., F.G.S.,

*President of the Lincolnshire Naturalists' Union, being the Presidential Address,
delivered at Lincoln, 1895.*

A TRAVELLER starting from the Trent side, and journeying eastwards across Lincolnshire, might reasonably suppose, as he met with escarpment after escarpment—first the Triassic and Rhœtic, then the Oolitic, and lastly that of the Chalk, with, here and there, lesser intermediate ridges—that the sea had been at work in forming the surface of the land; but his impression would be wrong. True that, since the land rose from under the deep chalk ocean, it has undergone various periods of subsidence, elevation, and rest, and has been covered by the waters of the sea at various times; true that, in the ice period, the whole of the land sank to a considerable depth below its present level, and, therefore, true that the surface has been to some extent modified by the sea—yet, for all that, there are distinct proofs, both positive and negative, that it is to the action of rain and rivers that the present configuration of the land is due.

In order to understand this, we cannot do better than consider how the gap through the Oolite escarpment at Lincoln was formed, as, from it, we get a clue to all the rest.

In my address last year I alluded to a great river system coming from the South and West, the only remains of it being the Witham.

Rivers cut narrow gorges or channels, and it is left to rains and sub-aerial forces to widen them into valleys. The fiords of Norway and the cañons of America are the work of rivers; but no one will give the Witham the credit of having cut through the Lincoln Gap, so we must look for a more powerful and efficient agent, and we find it in the Trent.

In considering this, it is most important that we should bear in mind the difference in the height of the land before the gap was formed, and at the present time.

To enable a river to cut through rocks, whether hard or soft, it must, of necessity, start from higher ground than the land it runs over; it must, in fact, have a downward slope to work on, and cannot go up hill. The land, therefore, to the West of Lincoln must at one time have been higher, instead of lower, than the present cliff, otherwise the gap could not have been made; or, as Mr. Jukes-Browne, in his paper 'On the relative ages of certain river-valleys in Lincolnshire,' puts it: 'The original direction of all rivers which cut through ridges was determined by the general slope of the ancient

surface over which they began to run.' This being borne in mind, what evidence is there to show that the Trent once flowed through the gap on which Lincoln is built?

The river itself is one of considerable volume. It is the combined issue of several streams, having their sources in Derbyshire, Staffordshire, Warwickshire, and Leicestershire, and it flows, as far as Newark, in a north-easterly direction; there, however, it leaves its course and bends to the north, skirting the low Triassic and Rhoetic escarpment on the west, 'as if it had not been able to cross that comparatively slight obstruction'; then, continuing past Gainsborough, it flows on northwards until it is lost in the Humber.

Now that this northward bend of the Trent, after reaching Newark, is of comparatively recent origin, and that it formerly continued its north-easterly course and flowed through the gap at Lincoln, is capable of proof; and the credit of suggesting this is due to Mr. Penning, of the Geological Survey, when he was engaged, in 1878, in mapping the gravel beds round Lincoln.

Now what are the proofs? First, it is, as Mr. Jukes-Browne says in his paper before referred to, 'a significant fact that if the general course of the Trent, south-west of Newark, be prolonged to the north-east, it points to the great gap in the Oolitic escarpment at Lincoln through which the river Witham now flows'; but it is more significant to find that, all along this north-east tract, lie vast beds of ancient gravel deposits, showing clear traces of river action, distinct from the other and more modern gravels around (which latter, as I shall show later on, are the result of floods to which the Trent has always been greatly liable); and still more significant is the fact that these ancient gravel beds carry with them incontestable proofs of their origin, being 'largely made up of rounded pebbles of quartzite, hornstone, and other old rocks, which have evidently been derived from the Triassic pebble-beds, beyond Newark, on the west'; and as these ancient gravels, with their component pebbles, are found in large quantities, not only between Newark and Lincoln to the west of the gap, but right through and far beyond it on the east, they could have been brought there only by the Trent, otherwise there is no way of accounting for them.

All this is, I submit, sufficient to convince any reasonable mind that the present course of the river Trent is not its original one, but that, ages ago, in early pre-glacial times—(as I think), and not post-glacial, as Mr. Jukes-Browne suggests—it passed through the Lincoln Gap to the fen-land beyond, which was then, probably an open bay.

We have now to enquire how the change came about; and, to understand it, we must learn something of the laws relating to river courses.

Rivers may be roughly divided into two main classes, 'primary' and 'secondary.' The 'primary'—or, as they are sometimes called, 'transverse' rivers from their running with the dip, transverse to the strike of the beds—take their rise on any elevated ground, and, having a gradual slope towards the sea, cut in a more or less direct line, through hard ridges and soft strata alike; and the valleys they form in their course, with the aid of rain and atmospheric agencies, are known as 'transverse' valleys; while the streams that flow into them on the sides, and which follow the strike of the strata, cutting through the softer and weaker beds between the ridges, are known as 'secondary' or 'subsequent' rivers, and their valleys longitudinal. These 'subsequent' streams may be, and they sometimes are, of greater length than the 'primary' rivers; and, as they deepen their beds and widen their valleys, they leave the hard ridges, parallel to which they run, standing out as inland cliffs or escarpments: (the formation of 'longitudinal' valleys, and of inland escarpments, being, in fact, in each case the result of one and the same process). Again, as time goes on, and the 'longitudinal' valleys are pushed further back, these subsequent rivers sometimes succeed in tapping, or capturing, other rivers and streams flowing at a higher level than themselves, which they happen to reach.

The Trent was a 'primary' stream when it first started on its course from the high district in the west—a time when the Derbyshire hills were hundreds of feet higher than they now are—and, finding a gradual slope towards the east, thither, of necessity, it directed its steps, cutting through opposing ridges and the more yielding strata alike till it reached the sea.

The Humber, too, was a 'primary' river when, ages ago, it left its cradle in the Yorkshire hills; and in its lower course it is one still, or rather the beheaded remains of one, for its upper streams—which Prof. Davis thinks may have been somewhere about Halifax or Huddersfield—are lost. This river, as it reached our land, had the same ridges to cut through as the Trent—the Triassic, Oolite, and Chalk—and it, too, found an outlet in the eastern sea.

At that time, however, as now, it lay at a lower level than the Trent; and, as it deepened its bed, a 'longitudinal' valley began to form on the soft Keuper marls to the south, where the Trent now flows.

The river Idle, which runs into the Trent a little to the north of Gainsborough, and was then an independent stream draining the land round Mansfield where it rises, flowed down this valley, deepening and widening it continually, till it reached the Humber. Other brooks and rivulets, collecting from the land around, helped on the

work ; and, as this went on year after year, and the valley was pushed back further to the south, the Trent was reached at last, and tapped near Newark ; perhaps, as Mr. Jukes-Browne suggests, 'on the occasion of some great flood, when the last intervening barrier gave way.'

Whether this is correct or not—and something of the kind may have easily occurred—I cannot doubt that, for a very long time afterwards, the two opposing channels struggled for the supremacy, and that the river flowed both ways ; but, as the Humber continued deepening its bed, and, as a consequence, deepening and pushing back its 'longitudinal' valley also, while the land between Newark and Lincoln, where the old channel ran, was reduced almost to a level, the result was inevitable ; the captured Trent gave way at last to the yielding marls of the Keuper, and—no longer a 'primary' but a 'subsequent' stream—became a tributary of the Humber.

This is but a mere outline of the subject, and those who wish to know more of it should read Mr. Jukes-Browne's paper ; and also an article in the magazine of the Royal Geographical Society, of last February, by William Morris Davis, Professor of Physical Geography, Harvard University, 'On the Development of certain English Rivers,' which deals with the subject more fully and elaborately than has been attempted by any previous author. A careful perusal of this most able and instructive paper will well repay the reader for his trouble.

After the Trent was captured, it would no doubt, for a long time, have a tendency to resort to its original course in times of flood. The Triassic and Rhoetic escarpment, which now bounds it on the East, is a very weak one at the best ; and only here and there, in places like Gate Burton, Gainsborough, and Burton Stather, does it present anything like a formidable barrier ; while, in many parts, it is a mere bank, and scarcely that ; but, as years went on, and its new channel through the soft Keuper marls was deepened, this tendency would gradually diminish.

The Trent has always been liable to floods. Before its course was changed the narrowness of the Lincoln outlet prevented any rush of water getting away quickly ; and the wide extent of ground covered by gravel deposits between Newark and Lincoln shows how greatly the land around was flooded.

At that distant period also, a powerful tributary, which has left its mark on the land in the shape of an ancient gravel-bed, entered the Trent near Lincoln, adding to the difficulty.

This stream, according to Mr. Jukes-Browne, had its source among the hills near Belvoir Castle, where the small river Devon, its modern representative, now rises.

Other similar streams would doubtless drain into the river from the 'longitudinal' valleys on either side, making matters worse, so that, in time of flood, the entire area west of Lincoln would often, for weeks together, be a sea of water. The river Witham, however, at this period followed a course of its own. Instead of running into Brayford, at the foot of the Oolite escarpment at Lincoln, as it now does, it passed, as a 'transverse' stream, through that escarpment at Ancaster, and flowed thence into the Wash. How it came to take its present course is not exactly known. It was certainly after the Trent had been captured by the Humber, and it may have been due to the wearing back of the 'longitudinal' valley in which it now runs; but, as there are signs of the uplifting of the land in the neighbourhood of the Ancaster gap, through which it formerly flowed, it may, in this way, have been turned aside and forced into its present channel. Its straight course into Brayford, as it approaches Lincoln, is due to modern requirements. Formerly it branched off westward into Boutham parish, where it was joined by the Till, coming from the opposite 'longitudinal' valley, half a mile, or more, west of the present High Bridge at Lincoln, before passing through the Gap.

In 1882, the late Mr. J. T. Padley—well known in the county as an accurate and painstaking engineer—published a work 'On the Fens and Floods of Mid Lincolnshire,' to which we are indebted for much valuable information. Before the Romans came, he says, 'every flood of the Trent flowed down to Lincoln through the Gap, and on over the fens to the sea,' part entering in at Friskney and Wainfleet Havens, and the rest at Boston. These flood waters came mainly through five openings in a range of low sandhills, extending from the village of Gorton in Nottinghamshire to Marton Cliff in Lincolnshire. These openings are at Spaldford, Newton, the Foss Dyke entrance, Torksey, and Brampton; and the most southerly one—at Spaldford—being the highest up the valley, was the most dangerous.

The far-seeing Romans, who did so much good work in the country, built banks across these openings, prior to which the Trent had access through them to Lincoln; and then, having received the waters of the Till and Witham, it had to pass through the narrow gap, thus raising the water to a great height, as a boat chained to a stake at Motherby Hill, 340 yards north of Brayford, proves; then, having gone through the Gap, the water flowed down into the fens, and, being joined by the Langworth river, the Bain and other streams, covered all the low land down to the Wash, leaving 'Swineshead, Bicker, Wigtoft, Boston, Skirbeck, Sibsey, and all the Holland towns (or tofts as they are called by Dugdale) mere islands in the water.'

The Spaldford bank, which is from 12 to 15 feet high on the road from Girton to South Clifton, is a mile and a half long and stands now a mile to the east of the river; and Mr. Padley gives us a very graphic account of a flood which occurred in 1795 when this bank gave way, and a great part of Nottinghamshire and Lincolnshire was flooded. To the west of Lincoln nearly 20,000 acres were covered to the height of 10 feet above the present level of the land and remained so covered for three weeks, during which time the only communication between the villages around, and for those going to Lincoln market, was by boat. The people at Saxilby had to get on to the higher ground in the village, the lower part being under water, and many lived in the church. The frightened cattle had to be rescued by boats from the knolls on which they had gathered. The water ran over the High Street at Lincoln; and on the far side of the gap, the land was converted into a sea. Such a flood as this, one would have thought, would have roused up the people to look after their interests, but, Mr. Padley tells us, from the time the Romans first made the Banks referred to up to 1852, when one of these great floods occurred, beyond a temporary patching up as occasion required, they were entirely neglected; a sign both of the apathy, and of the contented state of the people in those days.

This great flood of 1795 occurred at Candlemas; and it is curious to note that, at Candlemas of the present year, just a century later, and owing to the same cause—the melting of the snow after a long and severe frost, when the frozen ground was unable to absorb the moisture—the Trent bank a little above Gainsborough gave way, and this, notwithstanding the resources, and experiences, of another 100 years.

Since the year 1852, the attempts to keep out the floods from the Trent and the fens have been carried out on a more systematic scale. Up to that time the low land in Boutham, North and South Carlton, and Broxholme, were mere swamps covered with water the greater part of the year, while the fens to the east of the Gap, were in a permanent state of flood.

The reclaimed land, at first, was of little value for ordinary agricultural purposes, 2,500 acres at Blankney being let by auction, Mr. Padley tells us, for £10 per annum. Now, in many of these reclaimed areas, we have the richest pasture land in Lincolnshire.

Many amongst us can well remember the great changes which have taken place in the fens by drainage. In the early part of this century, and far later, you might look down over the fen country, winter after winter, and see nothing but water for miles. Skating to Boston was a common event; long lines of water-fowl flitted across

the sky; 'kite upon kite' could be seen on the wing; starlings whirled about in clouds and broke down the reeds as they settled upon them; and, where now the great engineering works of Lincoln are carried on, flocks of wild swans were seen, and the booming of the bittern was heard.

The fens were a sure and easy means of livelihood to those who dwelt in them. They netted the fish and trapped the eels, they stalked and shot the wildfowl, and brought them all on market days to the towns around. Many of them lived on the water in house-boats nearly all the year through; while those on the outskirts kept large flocks of geese and sheep on the rich grass lands; and all loved their wild free life. No wonder, then, that in 1768 numbers of them, fearing the loss of their old privileges, assembled to prevent the inclosure of Holland Fen. Unfortunately they committed great excesses, for they were a wild and lawless set. Men were shot; horses and sheep barbarously killed and mutilated; houses and haystacks burned; and much mischief was done: and, though all this must be deplored, there is many a Lincolnshire man left who can feel with the old fen men yet. To many amongst us the fen district is still a happy hunting-ground, and a land full of beauty as well. Many there are who see in it no mere level waste, but a land of glorious landscapes and happy feeding cattle; of rich sunsets and flights of birds: a land of rare water-plants and reeds; of deep, clear pools where the big pike lie; and of 'tangled water-courses shot over with purple and green and yellow.'

We have only now to enquire whether the sea took any part in all we have been considering, or whether it was the result of river action alone.

The low land to the east of the wolds has, no doubt, since glacial times, been frequently covered by the sea: the Romans, in fact, raised the sea bank to keep it out. The Witham also, until stopped by the locks at Boston, was tidal; and the sea would often run over the land long after the fens were reclaimed, and partially drained; as J. Ingelow records in her well-known poem, 'The High Tide on the Coast of Lincolnshire, 1571'—and, even as late as 1779, Mr. Padley, in his work before referred to, speaks of 'many vessels on the Lincolnshire coast being driven two miles in the marshes during a heavy gale.'

To the west also, where the Trent valley lies, it is quite probable that the sea occasionally covered the land in past times before the river was banked; but this would be only for a time, and during exceptionally high tides; and, when we think how low the land is on that side, and that the ægre, or tidal wave, which runs up the

Trent, is felt quite 14 miles above Gainsborough, we cannot wonder at it.

In addition to this, there are proofs of the near presence of the sea in the finding of recent marine shells inland. Some, Mr. J. D. Carr informs me, were met with in Newland, at the foot of Lincoln Cliff, during some alterations a few years since. They consisted chiefly of *Cardium edule*, *Mytilus edulis*, and *Littorina littorea*—the common cockle, mussel, and periwinkle—and they were all dwarfed, as is, invariably, the case when marine molluscs are found living in salt, or estuarine marshes, with a large admixture of fresh water. Mr. Carr, in writing about them, says they were ‘involved in a marine peat containing a good many bones, a large number being those of birds ; the peat underlies the whole of Newland, Guildhall Street, and Brayford, and, I should think (though I have seen no sections) the east side of the city also ; the whole rests on the Capricornis zone of the Lias.’ Besides this, the valve of an oyster shell, having the sandy case of a marine annelid attached, mixed with bones of deer and horse, and pieces of wood, was found recently in Mr. Pearson’s new brickyard on the Trent bank at Gainsborough, 14 feet 6 inches below the surface, in a bed of sand underlying warpy clay ; and, as the worm case is unbroken, and in good preservation, it could not have travelled far, and had probably been cast up by some stronger tidal rush than usual, which burst over and flooded the land. Beyond, however, these temporary occupations and incursions, there is no record of sea action ; and, in forming the contour of the land, its escarpments, valleys and plains, the sea took no part.

Rivers to start the grips, and atmospheric forces to widen them into valleys, is sufficient for it all. We want no other aid.

Such is the story of the Lincoln Gap ; one of the many pages in nature’s book which lie open at our feet, and which it is our privilege to read if we will. The study of it is wide and far-reaching, for, in the evolution or development of the Trent, we have a clue to the history of many another river and stream ; and, by the aid of the new and strong light thrown on the subject by Prof. Davis, in his recent admirable paper, we shall be able to trace the birth of many an inland escarpment, valley, and plain, the origin of which is at present unaccountable, or, to say the least, obscure.

NOTES AND NEWS.

From Messrs. Jarrold & Sons we have received a copy of ‘Object Lessons in Botany | from Forest, Field, Wayside & Garden. | (Book II., for Standards III., IV., & V.),’ by Mr. Edward Snelgrove, B.A., of Sheffield. The lessons are simply and graphically put, and the illustrations are commendably clear and distinct. The book is not dated, either on the title page or preface—a great defect—but it is well and clearly printed.

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MOSSES AND HEPATICS, 1888 to 1894.

THE present instalment has been compiled and edited by
WM. DENISON ROEBUCK, F.L.S.

Previous instalments of the Bibliography of Mosses and Hepatics were published with the Cryptogamia in general, as follows:—

For 1884—in 'Naturalist,' 1885, Oct., pp. 337-340.

„ 1885— „ 1886, June, „ 180-181.

„ 1886-7— „ 1888, Dec., „ 361-369.

The counties and vice-counties of which cognizance is taken in these references are the following, as named and numbered in the Watsonian scheme:—

53, Lincoln S. ; 54, Lincoln N. ; 56, Notts ; 57, Derby ; 58, Cheshire ; 59, Lancashire S. ; 60, Lancashire W. ; 61, York S.E. ; 62, York N.E. ; 63, York S.W. ; 64, York Mid W. ; 65, York N.W. ; 66, Durham ; 67, Northumberland S. ; 68, Cheviotland ; 69, Westmorland with Furness ; 70, Cumberland ; and 71, Isle of Man.

ANON. [not signed].

Derbyshire.

[*Hypnum rugosum*, the 'Dovedale Moss' and its almost entire disappearance from that locality, where once so abundant]. Midl. Nat., June 1888, p. 163.

ANON. [not signed].

Westmorland.

Field Meeting of the Kendal Natural History Society [at Longsleddale, 2nd Aug., 1888 ; *Hypnum crista-castrensis* noted]. Westm. Note Book and Nat. Hist. Record, vol. 1, part 3, Sept. 1888, p. 65.

J. E. BAGNALL.

Westmorland.

[Plants from Foxfield, Westmorland : *Sphagnum acutifolium*, *S. fimbriatum* in fruit, and *Dicranella cerviculata*]. Midl. Nat., Oct. 1888, p. 266.

R. BARNES.

Durham, York N.W. and N.E.

Some Additional Localities and New Records for the Mosses of North Yorkshire and South Durham [that is, for Upper Swaledale, the seaward portion of Cleveland, and Upper Teesdale ; list of 28 records new to Swaledale, and of 6 new to the Kison portion, precede the general list, in which are enumerated 140 species and varieties, with detailed stations]. Nat., July 1890, pp. 211-222.

R. BARNES.

York N.W.

Lejeunea rossettiana in North-West Yorkshire [near Hudswell and Richmond, growing on patches of *Zygodon stirtoni*]. Nat., Aug. 1890, p. 236.

RICHARD BARNES.

York N.E., N.W., Lanc. S., Derbyshire, Durham.

Four New Yorkshire Mosses [*Bryum warneum*, *B. lacustre*, *B. marratii*, and *B. calophyllum*, all from Coatham] ; with further Localities and New Records for the Moss-Flora of Upper Swaledale and North Yorkshire generally [*Trichostomum tophaceum*, *Systegium crispum*, *Gymnostomum squarrosum*, *Weissia viridula* var. *densifolia*, *Dicranella subulata*, *Archidium phascoides*, *Seligeria tristicha*, *Barbula revoluta*, *Encalypta ciliata*, *Discelium nudum*, *Webera annotina*, *Bryum bimum* var. *cuspidatum*, *B. murale*, *Diphyscium foliosum*, *Plagiothecium latebricola*, *Amblystegium conservedes*, *Hetero-*

cladium heteropterum, *Ambl. fluviatile*, *Hypnum ochraceum*, *H. giganteum*, and *Lejeunea rossettiana* noted; the localities are in N.E. and N.W. Yorkshire, Derbyshire, Durham county, and at Southport]. *Nat.*, May 1892, pp. 151-153.

RICHARD BARNES.

York N.W.

Aulacomnium androgynum in Upper Swaledale [near Keld; new for the dale]. *Nat.*, June 1892, p. 174.

RICHARD BARNES.

York N.E., Durham.

Distichium inclinatum: An Addition to the Moss Flora of England [found in Coatham Marshes and at Seaton Snook; *Bryum lacustre* Brid. and *Br. calophyllum* R.Br. also at both places]. *Nat.*, June 1892, p. 186.

[R.] BARNES [not signed].

York N.W.

Orthotrichum obtusifolium Schrad. [collected near Abbey Bridge, Yorkshire, during a recent Y.N.U. excursion]. *Grevillea*, Sept. 1892, p. 13.

J. BATALHA-REIS.

Cheviotland.

Note on the Plants and Insects observed at the Wooler Meeting [on Sept. 16 and 17, 1887; *Sphagnum acutifolium* Ehrh.? noted]. *Nat. Hist. Trans. Northumb. Durh. and Newc.*, vol. 10, part 1, publ. 1888, pp. 197-200.

C. H. BINSTEAD.

Cumberland.

Some Rare Mosses in Cumberland [stations given for *Grimmia elongata*, *Coscinodon cribrosus*, and *Mnium orthorrhynchum*; *G. doniana* and *M. riparium* also mentioned]. *Nat.*, Jan. 1890, p. 16.

D. A. BOYD.

Cheshire, York Mid W.

[**Orthodontium gracile** Wils. discovered at Helsby and Frodsham, Cheshire, in 1833, by Mr. Wilson, and found in Wharfedale by R. Spruce]. *Proc. N. H. S. Glasg.*, 29th March, 1887, New Series, vol. 2, part 1, 1886-7, pub. 1888, p.xxvi.

JAMES CASH.

Cheshire.

The British Fresh-Water Rhizopoda [being notes on those of Manchester district; *Dicranella cerviculata* on Carrington Moss, Cheshire, also referred to]. *Internat. Journ. of Micr.*, July 1892, p. 147.

E. MAULE COLE.

York S.E.

Peat Deposit at Filey [in which W. Cash and W. West identified *Polytrichum commune* and *Sphagnum acutifolium*]. *Nat.*, Jan. 1891, pp. 17-19.

CHAS. CROSSLAND.

York Mid W.

[**Mosses observed by**] Yorkshire Naturalists in Mid Ribblesdale [between Sawley and Gisburn, 7th Aug., 1893: *Tortula intermedia*, *Hypnum rugosum*, *H. molluscum*, and *H. crista-castrensis*]. *Nat.*, Jan. 1894, p. 10.

J. BURTT DAVY.

Linc. N. and S.

Notices of Books. Botany and Outline Flora of Lincolnshire. By F. Arnold Lees [which is criticised in detail, with references in particular to *Didymodon sinuosus* and *Aulacomnium palustre*]. *J. of Bot.*, Apl. 1893, pp. 123-4.

H. N. DIXON.

Cumberland or Westmorland.

Notes on the British Species of Campylopus [including a record of *C. flexuosus* var. *paradoxus* for Helvellyn, 1891]. *J. of Bot.*, Apl. 1893, p. 107.

H. FISHER.

Notts.

Cellular Cryptogams [of Nottinghamshire; enumerating 135 Mosses and 19 Hepatics, without annotation or stations]. *Carr's Contribution to the Geol. and Nat. Hist. of Nottinghamshire*, 1893, pp. 83-86.

HILDERIC FRIEND.

Notts.

Notes on the Flora of North Notts [including one on *Bartramia pomiformis* at Apley Head]. *Trans. and 35th Rep. Nottingham Nat. Soc.* for 1887, publ. 1888, p. 33.

- HILDERIC FRIEND.** **Cumberland.**
Solway Dunes [at Silloth] in April [the common *Polytrichum*, *Ceratodon*, *Funaria*, *Barbula subulata*, *Bryum cæspitium*, *Hypnum velutinum*, *Dicranum scoparium*, *Tortula muralis*, *Grimmia pulvinata* mentioned].
 Sci. Goss., June, 1889, pp. 125-126.
- HILDERIC FRIEND.** **Cumberland.**
A Mud-capped Dyke [in Cumberland; *Polytrichum commune*, *Tortula*, *Grimmia*, and *Hypnum cupressiforme* noted]. Sci. Goss., June 1890, p. 136.
- ANTONY GEPP.** **York Mid W.**
Is *Hypnum catenulatum* Brid. a North American Moss? [answered in the negative; the locality for it is Ingleborough (Jno. Nowell), erroneously attributed to 'New York' by American writers]. J. of Bot., May 1889, p. 152.
- A. G[EPP].** **Westmorland.**
Review of the British Moss-Flora. By R. Braithwaite. . . Part XIV.
 [mentioning Westmorland as a locality for the rare *Bryum muhlenbeckii* B. & S.].
 J. of Bot., Aug. 1892, p. 252.
- A. G[ODWARD?].** **York S.W.**
Annual Report, 1884. . . . Mosses [Huddersfield district localities given for *Sphagnum cuspidatum*, *Mnium hornum*, *M. punctatum*, *Polytrichum juniperinum*, *P. commune*, *Funaria hygrometrica*, *Dicranum heteromallum*, *D. scoparium* var. *majus*, *D. fuscescens*, *Leucodon lagurus*, *Hypnum hamulosum*, *H. ruscifolium*, *H. prælongum*, *Fontinalis squamosa*, and *F. antipyretica*]. Trans. Huddersfield Nat. Soc., part 2, pub. 1885?, p. 7.
- JAMES HARDY.** **Cheviotland.**
Report of the Meetings of the Berwickshire Naturalists' Club for the year 1889 [noting *Zygodon mougeotii*, *Dicranum majus*, *Bryum crudum*, *B. wahlenbergii*, *B. pseudo-triquetrum*, *B. pallens*, *B. alpinum*, *Mnium stellare*, *Physcomitrium ericetorum*, *Isothecium alopecurum*, *Hypnum heteropterum*, *H. commutatum*, and *Hookeria lucens* in the vicinity of the Linns, Linhope, 29th May; *Scapania undulata*, *Dicranum fuscescens*, *Weissia cirrhata*, *Jungermania furcata*, *J. nemorosa*, and *J. scalaris*, noted for various stations in Cheviotland]. Proc. Berw. Nat. Club for 1889, vol. 12, No. 3, pub. 1890, pp. 436-506.
- CHAS. P. HOBKIRK.** **York S.W.**
A Curious Habitat of Some Mosses [at Hartley Bank Colliery, near Dewsbury; *Mnium hornum*, *Polytrichum commune*, and *Webera albicans*].
 Nat., Jan. 1888, pp. 13-14.
- C. P. HOBKIRK.** **York S.W.**
On a Curious Habitat of Certain Mosses [*Mnium hornum* and *Polytrichum commune*, submerged in a quarry pool, near Dewsbury]. 57th Rep. Brit. Assoc., Manchester, 1887, pub. 1888, p. 772.
- CHAS. P. HOBKIRK.** **Linc. N.**
***Plagiothecium undulatum* in Lincolnshire in Pre-Historic Times**
 [account of some used for caulking the ancient boat found in 1886 at Brigg].
 Nat., Jan. 1889, p. 4.
- C. P. H[OBKIRK].** **Furness, Westmorland.**
[Review of] Braithwaite's British Moss-Flora [mentioning Coniston, 1867, and Staveley, near Kendal, Binstead, 1886, as stations for *Coscinodon cribrosus*]. Nat., Feb. 1889, p. 53.
- C. P. HOBKIRK.** **York S.W.**
[Mosses and Hepatics observed by] The Yorkshire Naturalists' Union
 at Holmfirth [10th June, 1889; of Mosses, *Dichodontium pellucidum*, *Dicranella squarrosa*, *D. heteromalla*, *Ceratodon purpureus*, *Philonotis fontana*, *Funaria hygrometrica*, *Bryum argenteum*, *Mnium punctatum*, *Brachythecium rivulare*, and *Plagiothecium undulatum*; of hepatics, *Diplophyllum albicans*, *Nardia scalaris*, and *Jungermania barbata*]. Nat., July 1889, p. 204.

- E. M. HOLMES. Derbyshire.
Note on *Tortula nitida*, Lindb. [which reaches its most northerly point in Dovedale, Derbyshire]. Proc. Bot. Soc. Edinb., Feb. 11, 1886, vol. 16, part 3, p. 492.
- G. A. HOLT. Isle of Man.
A List of the Mosses of the Isle of Man [enumerating 232 species, with localities, and including records published in the Phytologist for 1857 by J. H. Davies]. Trans. Isle of Man N.H.S., vol. i., 1879-84, pub. 1888, pp. 62-84.
- Isle of Man, Cheshire, York Mid W. and N.E.,
 Derbyshire, Lancashire.
- G. A. HOLT.
***Plagiothecium borrierianum*—(Spruce.)** [in the Isle of Man, near Douglas; common in Lancashire, Derbyshire, and Cheshire glens; Marple, Wetherby, Whitby, also stated as localities]. Back Trans. Isle of Man N.H.S., p. 10; published with Vannin Lioar, Jan. 1889.
- G. A. HOLT. York N.E., Derbyshire.
***Mnium stellare* (Hedwig)** [described, and Mowthorpe Dale, Yorkshire (Spruce, 1844), fruit at the Winnats, Derbyshire (G. A. Holt, 1882), given as stations]. Vannin Lioar, Jan. 1889, p. 19.
- G. JAMESON. Westmorland.
***Rhabdoweisia* as a French Moss** [compared with examples gathered last September (1889) in Westmorland in fine fruit]. Revue Bryologique, 1890, No. 1, p. 6.
- P. M. C. KERMODE. Isle of Man.
Address by the Retiring President . . . delivered . . . March 11th, 1886 [gives titles of books and papers dealing with the Hepatics and Mosses of the Isle of Man]. Back Transactions of the Isle of Man N.H.S., i., 70; published with Yn Lioar Manninagh, Oct. 1889.
- P. FOX LEE. York S.W.
***Cephalosia Lammersiana* near Dewsbury** [at Bretton in profusion; identified by M. B. Slater; an addition to the Calder basin flora]. Nat., Dec. 1889, p. 355.
- FREDERIC ARNOLD LEES. York N.W., Mid W., and S.W.
The Flora | of | West Yorkshire | with a | sketch of the climatology and lithology in connection therewith | By | [four lines of authorship] | — [two lines of quotation] | — | London: | . . . | — | 1888 [8vo. cloth; the Bryophyta occupy pp. 531-628 and 801-805; the total number of species recorded amounts to 348 mosses and 108 hepatics].
- DAVID MCARDLE. Yorkshire.
Hepaticæ of Co. Wicklow [with comparative note on the Yorkshire distribution of *Lophocolea heterophylla* (Schrad.) Dumort.]. J. of B., Sep. 1889, p. 269.
- R. T. MANSON. Durham.
Zig-Zag Ramblings by a Naturalist [near Darlington; note as to *Marchantia polymorpha* at Hell Kettles (pp. 8, 53, and 122), and *Hypnum cuspidatum*, *H. cupressiforme*, *H. lutescens*, *H. purum*, *H. proliferum*, *Leptobryum pyriforme*, *Polytrichum commune*, and *Thuidium blandovii* enumerated as occurring in the district (p. 123)]. Small 8vo. Darlington, 1884.
- J. J. MARSHALL. York S.E.
Uncommon Moss [*Systegium crispum*] near Market Weighton [which confirms Teesdale's record of it as an East Riding moss]. Nat., June 1893, p. 164.
- J. J. MARSHALL and C. WATERFALL. York S.E.
[Mosses and Hepatics observed by the Yorkshire Naturalists' Union at Pocklington [on Sept. 6th and 7th, 1893; *Dicranella heteromalla*, *Dicranum*
Naturalist,

spurium, *Campylopus pyriformis*, *C. fragilis*, *C. flexuosus*, *Bryum erythrocarpum*, *Plagiothecium denticulatum*, and *Amblystegium riparium*; and the rare hepatic, *Fossombronia dumortieri*. Nat., March 1894, p. 66.

J. J. MARSHALL.

York S.E.

Discovery of two Rare Mosses near Market Weighton [in June 1894; *Seligeria calcarea* and *S. paucifolia* abundant in a chalk cutting at Enthorpe; distribution and old Yorkshire records (Bishop Burton, 1798, and Wetherby, 1801, respectively) given]. Nat., Nov. 1894, p. 348.

J. A. MARTINDALE.

Westmorland and Furness.

Our District [= Westmorland and Furness, defined, described, divided into six river-basin districts, and illustrated by an excellent coloured map; each district has a list of its rarer mosses and hepatics given; the list for the entire county amounts to 360 mosses and 118 hepatics on the authority of Geo. Stabler]. Westm. Note Book and Nat. Hist. Record, Part I, March 1888, pp. 1-19 of Record, with folding map.

J. I. NEWTON.

Lanc. S.

Rambles during the year 1887.—Ashton-under-Lyne [30th July; *Fontinalis antipyretica* and *Riccia fluitans* noted in ponds near Ashton Moss]. Ann. Rep. Manch. Microsc. Soc. for 1887, publ. 1888, pp. 66-67.

W. H. PEARSON.

York S.E.

[Hepatics noted by] Yorkshire and Lancashire Naturalists at Saddleworth [16th June, 1888; the Hepatics noted were *Diplophyllum albicans*, *Scapania undulata*, *Cephalozia bicuspidata*, *C. divaricata*, *Chiloscyphus polyanthus*, *Kantia arguta*, and *Pellia epiphylla* at Uppermill, and *Jungermania riparia* at Saddleworth]. Nat., July 1888, p. 214.

W. H. PEARSON.

Cumberland, Westmorland.

Marsupella Stableri Spruce [in new stations; referring also to the old ones—Bowfell (Stabler) and Langdale Valley (Stabler and Pearson)]. J. of Bot., March 1889, p. 94.

W. H. PEARSON.

York Mid W., Derbyshire.

A New British Hepatic [*Lejeunea* (*Cololejeunea*) *rossettiana* Massal., described and figured; localities include Gordale, Yorkshire, and three stations in Derbyshire]. J. of Bot., Dec. 1889, pp. 353-354, and plate 292.

W. H. PEARSON.

Derbyshire.

[*Lejeunea rossettiana* at Miller's Dale]. Research, March 1890, p. 210.

W. H. PEARSON.

Cumberland.

***Scapania planifolia* Hook.** [collected April 1890 near Borrowdale, Cumberland; remarks on synonymy and distribution]. J. of Bot., July 1890, p. 219.

W. H. PEARSON.

York Mid W., Westmorland.

A New British Hepatic [brought forward; *Scapania aspera* M. & B., Bolton Woods, Yorkshire, Dr. Carrington, July 1877, and Yewbarrow, Westmorland, Geo. Stabler, Nov. 1869]. J. of Bot., Dec. 1892, pp. 353-4 and plate 329.

W. H. PEARSON.

York Mid W.

In Memory of Benjamin Carrington [with full notice of his life, and mention of his connection with the discovery in Britain of *Scapania bartlingii* Hampe from Bolton Woods, 1858]. J. of Bot., April 1893, pp. 120-122.

W. H. PEARSON.

York Mid W.

Frullania microphylla [described as a species; hitherto regarded as var. *microphylla* Gottsche of *F. tamarisci* L.; several stations given, including Ingleton (Webster and Pearson, May 1893)]. J. of Bot., Nov. 1894, p. 329.

J. PHILLIPS.

York Mid W.

Riccia fluitans [in great abundance at Askham Bog, July 1891]. Internat. Journ. of Micr., April 1892, p. 138.

E. P. QUINN.

Cheshire.

Rambles during the year 1887.—Ashley [June 11; *Fontinalis* (*antipyretica*?) abounds]. Ann. Rep. Manch. Microsc. Soc. for 1887, pub. 1888, pp. 63-64.

J. F. ROBINSON.

Cheshire.

On the Botany of the Cheshire Meres [a brief note, mentioning *Sphagnum cymbifolium*, *S. rigidum compactum*, and *S. subsecundum contortum*, and their habitats, as characteristic forms met with]. Proc. Bot. Soc. Edinb., vol. 14, part 3, 1883, pp. cvi.-cvii.

M. B. SLATER.

York N.E. and S.E.

Botanical [Report for 1885; full details of work done in the season; numerous species of mosses and hepatics mentioned]. Third Ann. Rep. Malton Nat. Soc. 1885-86, publ. 1886, pp. 8-9.

M. B. SLATER.

York N.E. and S.E.

Botany [being Report on the Investigations of 1886 made by Malton members; numerous mosses and hepatics mentioned]. Fourth Rep. Malton F. Nat. and Sci. Soc., 1886-87, publ. 1887, pp. 17-19.

M. B. SLATER.

York N.E.

The Yorkshire Naturalists' Union at Robin Hood's Bay [16th July 1888; 13 mosses and 4 hepatics enumerated as found]. Nat., Aug. 1888, p. 240.

M. B. SLATER.

York S.E.

The Yorkshire Naturalists' Union at Market Weighton [6th Aug. 1888; 20 mosses and 5 hepatics named as seen, including *Hypnum imponens*]. Nat., Sep. 1888, p. 280.

M. B. SLATER.

York N.E.

The Yorkshire Naturalists' Union at Robin Hood's Bay [21st June 1889; of mosses were noted *Dicranella varia*, *Ceratodon purpureus*, *Grimmia apocarpa*, *G. schultzei* Brid. = *G. decipiens* Lind., *Funaria hygrometrica*, *Fissidens taxifolius*, *Plagiothecium undulatum*, *Pl. denticulatum*, *Pl. borrierianum*, *Rhynchostegium ruscifolium*, *Hypnum palustre*, *Bryum capillare*, and *Atrichum undulatum*; and of hepatics, *Cephalozia lammersiana*, *Lophocolea cuspidata*, *Scapania purpurascens*, *Diplophyllum albicans*, *Nardia obovata*, *Jungermania inflata*, and *Pellia calycina*]. Nat., Aug. 1889, p. 231.

M. B. SLATER.

York Mid W.

The Yorkshire Naturalists' Union at Harrogate [13th July 1889; of Mosses, *Sphagnum subsecundum*, *Dicranella heteromalla*, *Dicranum scoparium*, *Encladium verticillatum*, *Encalypta streptocarpa*, *Webera nutans*, *Polytrichum formosum*, *Bryum pallens*, *Homalothecium sericeum*, *Brachythecium rutabulum*, *Plagiothecium denticulatum* var. *aptychus*, *Pl. undulatum*, *Pl. borrierianum*, *Hypnum cupressiforme*, *H. schreberi*, *Amblystegium fluviatile*; and of hepatics, *Marchantia polymorpha*, *Fegatella conica*, *Pellia epiphylla*, *Scapania purpurascens*, *Lepidozia reptans*, *Cephalozia bicuspidata*, *Lophocolea heterophylla*, *Diplophyllum albicans*, and *Jungermania attenuata*, noted, all at Hookstone, Crimble Valley or Plumpton]. Nat., Aug. 1889, p. 239.

MATTHEW B. SLATER.

York N.W. or Durham.

Upper Teesdale Mosses [gathered by R. Barnes, and new records for the district: *Sphagnum acutifolium* and three varieties; *S. squarrosum* var. *teres*; *S. subsecundum* var. *obesum*; *Didymodon luridus*, *D. cylindricus* and var. *holtii*, *D. sinuosus*, *Trichostomum mutabile*, *T. crispulum*, *T. littorale*, *Barbula recurvifolia*, and *Racomitrium ellipticum*]. Nat., Sep. 1889, p. 278.

M. B. SLATER.

York N.W., Durham.

The Yorkshire Naturalists' Union in Upper Teesdale [in Aug. 1889; giving list of 41 mosses collected by R. Barnes, including some rare species, though none are previously unrecorded]. Nat., Sep. 1889, p. 285.

M. B. SLATER.

York N.E.

Mosses at Robin Hood's Bay [two additions to the list are *Grimmia decipiens* and *Bryum alpinum* L. var. *meridionale* Schmp.]. Nat., Nov. 1889, p. 322.

M. B. SLATER.

York S.E.

The Yorkshire Naturalists' Union at Lowthorpe near Driffeld [26th May, 1890; mosses and hepatics noted were *Mnium punctatum*, *Amblystegium serpens*, *Orthotrichum lyellii*, *O. affine*, *O. diaphanum*, *Rhynchostegium confertum*, *Hypnum cuspidatum*, *Eurhynchium striatum*, *E. crassinervium*, *Climacium dendroides*, *Leucodon sciuroides*, *Homalothecium sericeum*, *Brachythecium plumosum*, *Eurhynchium piliferum*, *Zygodon viridissimus*, *Bryum capillare*, *Frullania capillare*, *Radula complanata*, *Lophocolea bidentata*, and *L. heterophylla*; unsuccessful search made for *Cryphaea heteromalla*, which occurs at Sledmere and also to the east of Lowthorpe]. Nat., July 1890, p. 208.

M. B. SLATER.

York N.E.

The Yorkshire Naturalists' Union at Kildale-in-Cleveland [12th July, 1890; *Bryum capillare*, *Barbula cylindrica*, *Dichodontium flavescens*, *Nardia obovata*, *Cephalozia lammersiana*, *Jungermania riparia*, *J. gracillima*, *Frullania dilatata*, and *Cephalozia catenulata* var. *pallida* noted as gathered, with details]. Nat., Sep. 1890, p. 273.

M. B. SLATER.

York N.E.

Disappearance of Plants in Yorkshire [being record of extirpation of *Paludella squarrosa*, *Thuidium blandovii* and *Camptothecium nitens* at Terrington Carr by reason of drainage]. Nat., Jan. 1891, p. 6.

M. B. SLATER.

York S.E.

[Cellular Cryptogams observed by] the Yorkshire Naturalists' Union on the Wolds [at York Dale and Sledmere, 3rd Aug. 1891; *Isothecium myurum*, *Hypnum cupressiforme*, *H. resupinatum*, *Plagiothecium denticulatum*, *Homalothecium sericeum*, *Leucodon sciuroides*, *Neckera complanata*, *Orthotrichum affine*, *O. lyellii*, *Ulota bruchii*, *Zygodon viridissimus*, *Thuidium recognitum* (new for Yorks. S.E.), *Lophocolea heterophylla*, *Metzgeria furcata*, *Frullania dilatata*, *Radula complanata*, and the rare *Ptilidium ciliare* var. *pulchrum* (new to Yorks. S.E.) noted]. Nat., Oct. 1891, p. 305.

M. B. SLATER.

York N.E.

[Mosses and Hepatics noted by] the Yorkshire Naturalists' Union at Hayburn Wyke [on July 11, 1891; *Sphagnum subsecundum*, *S. cymbifolium*, *Bryum capillare*, *Dicranella heteromalla*, *Tetraphis pellucida*, *Plagiothecium undulatum*, *P. denticulatum*, *Hypnum commutatum*, *Lepidozia reptans*, *Cephalozia lammersiana*, *Jungermania crenulata*, *Diplophyllum albicans*, *Jung. capitata*, *Tortula muralis*, *Limnobium palustre*, *Eucladium verticillatum*, *Dichodontium pellucidum*, *Brachythecium plumosum*, *Trichostomum tophaceum*, *Jung. riparia*, and *Frullania dilatata*, noted, with abundant detail]. Nat., Oct. 1891, p. 290.

M. B. SLATER.

Derbyshire, York S.E., N.E., N.W.

Report on Yorkshire Botany for 1880-91 [misprint for 1890-91]. *Cryptogamia* [mentions *Grimmia torquata* (Upper Teesdale, N.W.), *Thuidium recognitum* (Settrington and Sledmere, S.E., also Derbyshire), *Cylindrothecium concinnum* (Sleightholmedale and Welham, N.E.), *Cololejeunia rossettiana* (near Richmond, N.W.), *Blepharozia ciliaris* var. *pulchrum* (York Dale near Sledmere, S.E.), *Pottia bryoides* (Market Weighton, S.E.), *Pylaisia polyantha* (ditto), *Orthotrichum pulchellum* (near Birdsall, S.E.) and *Cylindrothecium concinnum* (near Langton, S.E., and various N.E. localities) noted as new records for the vice-counties mentioned; and *Brachythecium plumosum* (Lowthorpe), *Barbula cylindrica*, *Dichodontium flavescens*, and *Nardia obovata* (Kildale), and *Campylopus pyriformis*, *Aulacomnium androgynum*, *Polytrichum gracile*, *Plagiothecium latebricola*, *Amblystegium fluviatile*, *Cephalozia fluitans* and *C. connivens* (Leckby Carr district, N.W. Yorks.) noted as collected on excursion]. Nat., April 1892, pp. 108-110.

MATTHEW B. SLATER.

York N.W.

[Mosses observed by] the Yorkshire Naturalists' Union at Rokeby 6 June, 1892; *Gymnostomum tenue*, *Didymodon sinuosus*, *Ditrichum flexicaule*, *Barbula levipila*, *B. papillosa*, *Ptychomitrium polyphyllum*, *Bartramia ithyphylla*, *Webera cruda*, *Bryum inclinatum*, *B. obconicum*, *Mnium stellare*, *Anomodon longifolius*, *Rhynchostegium depressum*, *Hypnum polymorphum*, *H. palustre*, *H. filicinum*, *Amblystegium irriguum*, *Brachythecium rivulare*, *Leucodon sciuroides*, *Orthotrichum cupulatum* var. *nudum*, *O. fastigiatum*, *O. lyellii*, and *O. obtusiflorum*, the latter being a new record for the district and discussed in detail; of Hepatics the following are mentioned as gathered up the Greta from Rokeby in Aug. 1879: *Frullania dilatata*, *Lejeunea serpyllifolia*, *Radula complanata*, *Porella platyphylla*, *P. rivularis*, *Lepidozia reptans*, *L. setacea*, *Lophocolea cuspidata*, *Kantia trichomanis*, *Blepharostoma trichophylla*, *Diplophyllum albicans*, *Jungermania riparia*, *J. ventricosa*, *J. turbinata*, *Nardia emarginata*, *Pellia epiphylla*, and *Metzgeria pubescens*]. *Nat.*, July 1892, pp. 212-213.

GEORGE STABLER.

Westmorland, Cumberland, Yorkshire.

On the Hepaticæ and Musci of Westmorland [introductory instalment, including climatological and physical description of the county, and bibliographical references to its moss-flora]. *Nat.*, Oct. and Nov. 1888, pp. 312-320.

GEORGE STABLER.

Westmorland.

The Mosses and Hepatics of Westmorland [being the same paper that appeared in 'The Naturalist'; Geographical and rainfall introduction and Chronologically-arranged bibliography]. *Westm. Note Book and Nat. Record*, Sep. and Dec. 1889, pp. 165-173.

JOHN TATHAM.

Lanc. S., Cheshire.

The President's Address [noting *Hypnum riparium* plentiful on the water-line of canal at Gorton, Ap. 10, 1880, and *Polytrichum*, *Bartramia* and *Jungermania* at Hale Moss, May 15, 1880; species not stated]. *Ann. Rep. Manch. Microsc. Soc.* for 1884-5, publ. 1885, p. xvi.

C. H. WADDELL.

Cumberland.

Jubula hutchinsiae in Cumberland [at Lodore, 1884]. *Nat.*, May 1888, p. 143.

WM. WEST.

Derbyshire.

Plant Gossip. No. 1. (Continued.) [Noting fine *Funaria hygrometrica* on a limestone wall in Derbyshire at 1,000 ft. alt.]. *Nat. World*, Mch. 1884, p. 33.

WM. WEST.

York Mid W., Lanc. S. or W.

Plant Gossip. No. 1. (Continued.) [With note of *Bryum* var. *magus* and *Dicranella varia* on Baugh Fell, and var. *lanatum* on Lancashire coast-dunes]. *Nat. World*, Ap. 1884, p. 50.

W. WEST.

York Mid W. and N.W.

Lejeunea Rossettiana Massal. [at Gordale, Dent, Heseltine Ghyll (Penyghent), and Ingleton, specimens were all *L. calcarea*, except one from Ingleton, Sep. 1884, which was *L. rossettiana*]. *J. of Bot.*, May 1890, p. 157.

JOHN WHITEHEAD.

Derbyshire.

Physcomitrella patens in Derbyshire [at Chapel-en-le-Frith, abundant, habitat stated]. *Nat.*, March 1889, p. 86.

JOHN WHITEHEAD.

Derbyshire.

North Derbyshire Mosses [enumerating 273 species and about 51 varieties, with localities]. *J. of Bot.*, July 1894, pp. 193-201.

W. C. WILLIAMSON.

Lanc. S.

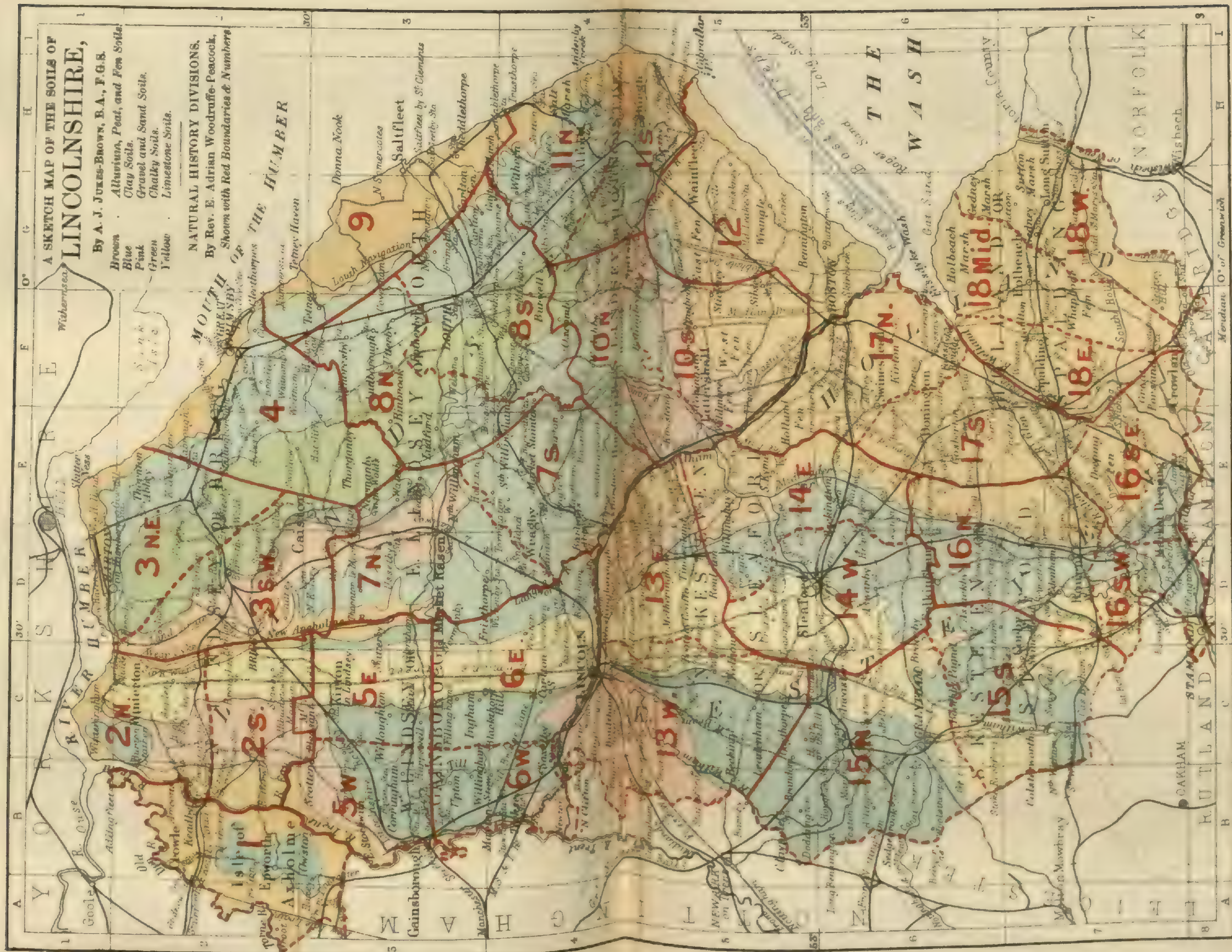
[Two forms of Reproductive Gemmules on *Webera nutans* and another moss from his hothouses at Fallowfield, Manchester]. *Mem. and Proc. Manch. Lit. and Phil. Soc.*, 13 Feb., 1888, series 4, vol. i., 1888, p. 99.

C. H. B. WOODD.

York N.W. and Mid W.

'The Flora of a Pothole' [on Oughtershaw Moor; *Marchantia*, *Hypnum*, and *Sphagnum* mentioned]. *Nat.*, Sep. 1894, pp. 269-270.

Naturalist,



THE NATURAL HISTORY DIVISIONS OF LINCOLNSHIRE.

REV. E. ADRIAN WOODRUFFE-PEACOCK,

*Vicar of Cadney, Brigg, General and Botanical Secretary Lincolnshire Naturalists' Union,
and Curator of Lincolnshire County Herbarium.*

THE COUNTY.

LINCOLNSHIRE, the second county in England in size, according to the last Ordnance Survey contains 1,783,769·998 square acres or 2,787·140 square miles of land, fresh water, salt-marsh, fore-shore, and tidal water. It is about 75 miles from its extreme points north and south, and 45 miles in its widest part from east to west, and lies between the parallels 52 degrees and 40 minutes and 53 degrees 43 minutes north latitude, and 56 minutes west and 22 minutes east longitude from the meridian of Greenwich. A little more than half of the county is upland and heath of the wold and cliff ranges of hills; the rest was formerly fen, marsh, and carr, but is now most thoroughly drained by natural means, artificial dykes, and steam pumps. There is not an acre of true fen left in the whole county. Even the bogs on the sand commons are most restricted, and only found in two or three parishes in north-west Lindsey. The drainage has been so thoroughly carried out that in a dry season the fen-farms more distant from the outfall of the rivers are badly in want of water for their stock, and to keep the cattle from wandering across the natural boundaries of the district, the fen-dykes, which are often quite dry. The native fauna and flora of the fens have quite gone, but we have the fen-dyke fauna and flora in profusion, if anyone but a native can understand the distinction, or appreciate the effect which the annual cleaning out and mowing the sides of our larger and smaller drains, liming and manuring have had on our flora—annual, biennial, or perennial—and the life which it sustains.

NATURAL HISTORY DIVISIONS.

The plan I have adopted for these Divisions, after many useless attempts to make a geological or river-basin distribution, much thought, and some consultation with others interested in the matter, is a purely arbitrary one, like that of Professor Babington's *Flora of Cambridgeshire*, for the peculiar physical features of Lincolnshire, with its 500,000 acres of fenland and low hills, admit of no other. With a very few exceptions all the natural history records yet published are on the parish basis; taking the larger towns as far as possible as centres the parishes have been aggregated round them into divisions, always keeping in view two points, (1) the work already

done, and (2) railway communication for future observation. The Watsonian Vice-Counties, N. Lincs. 53 or **N.** and S. Lincs. 52 or **S.**, have been left intact, clearly separated as they are by the river Witham from Boston to Lincoln, and by the Foss Dyke from Lincoln to the border of Nottingham. The modern course of these streams is the line of demarcation; and as both cut through one or more parishes on their way from the cathedral city to their outfalls in the Wash and river Trent, these parishes have both a **N.** and a **S.** vice-county number. This is also the case with parishes scattered in departments referred to below. In making notes in divided or scattered parishes it is an easy matter to remember whether the Witham or Foss Dyke is to the north or south of the place of observation. As **N.** contains more than three-fifths of the county, and as **S.** is almost one-half unwooded fen-land, which has been so greatly changed in fauna and flora by drainage and high farming during the last hundred years, I have given **N.** a double share of Divisions, which are therefore smaller for the most part than those of **S.** They are shown by *continuous red* lines and numbers on the map, and are named as follows:—

NORTH LINCOLNSHIRE, 53.

- | | |
|-----------------------------|------------------------------|
| 1.—Isle of Axholme. | 7.—Market Rasen. |
| 2.—Winterton and Broughton. | 8.—Louth. |
| 3.—Barton and Caistor. | 9.—Saltfleet (Littoral). |
| 4.—Great Grimsby. | 10.—Horncastle and West Fen. |
| 5.—Kirton and Gainsborough. | 11.—Alford and Burgh. |
| 6.—Lincoln (North). | 12.—Boston and East Fen. |

SOUTH LINCOLNSHIRE, 52.

- | | |
|----------------------|-------------------------------|
| 13.—Lincoln (South). | 16.—Bourn and Stamford. |
| 14.—Sleaford. | 17.—Swineshead and Donington. |
| 15.—Grantham. | 18.—Spalding and Holbeach. |

The numbers indicate which vice-county a record refers to without the constant use of **N.** and **S.**

SUB-DIVISIONS.

The sub-divisions of the larger divisions—which have been obligingly worked out by Mr. W. Denison Roebuck—have been added for the purpose of facilitating more detailed work and of more fully indicating the distribution of rare and local species. They are shown by *dotted red* lines, and are further indicated by the initial letters of the cardinal points of the compass on the map. It is not, however, thought advisable to print these initial letters after the division numbers in the place name list, as it would add considerably to the length of the paper. The Secretary of the Lincolnshire Naturalists' Union, or the Editors of 'The Naturalist,' are,

however, prepared to supply workers with a large scale map of Lincolnshire, showing the parish boundaries, and coloured to indicate all divisions and sub-divisions clearly, at 1/6 per copy. The numbers, initial letters, and names of the sub-divisions are as follows :—

NORTH LINCOLNSHIRE, 53.

- | | | | |
|---------|---------------------|--------|------------------------|
| 1. | —Isle of Axholme. | 7. N. | —Market Rasen. |
| 2. N. | —Winterton. | 7. S. | —Wragby. |
| 2. S. | —Broughton. | 8. N. | —Ludborough. |
| 3. N.E. | —Barton-on-Humber. | 8. S. | —Louth. |
| 3. S.W. | —Caistor and Brigg. | 9. | —Saltfleet (Littoral). |
| 4. | —Great Grimsby. | 10. N. | —Horncastle. |
| 5. E. | —Kirton Lindsey. | 10. S. | —West Fen. |
| 5. W. | —Gainsborough. | 11. N. | —Alford. |
| 6. E. | —Lincoln (North). | 11. S. | —Burgh. |
| 6. W. | —Saxilby. | 12. | —Boston and East Fen. |

SOUTH LINCOLNSHIRE, 52.

- | | | | |
|--------|-------------------|----------|---------------|
| 13. E. | —Nocton. | 16. S.W. | —Stamford. |
| 13. W. | —Lincoln (South). | 16. S.E. | —Crowland. |
| 14. E. | —Heckington. | 17. N. | —Swineshead. |
| 14. W. | —Sleaford. | 17. S. | —Donington. |
| 15. N. | —Grantham. | 18. W. | —Spalding. |
| 15. S. | —Corby. | 18. MID. | —Holbeach. |
| 16. N. | —Bourn. | 18. E. | —Long Sutton. |

SKETCH SOIL MAP.

The map, which has been most kindly prepared and coloured for 'The Naturalist' by Mr. A. J. Jukes-Browne, of the Geological Survey, is a sketch, as far as the scale will allow, of the soils of the County. Five classes are represented in colours as follows :—

Brown—Alluvium, Peat, and Fen soils.

Blue—Clay soils.

Pink—Gravel and Sand soils.

Green—Chalky soils.

Yellow—Limestone soils.

It is not a geological or drift map—though based on the maps of the Geological Survey—as the following short, but far from full, analysis will show. The *Brown* or Alluvium, Peat, and Fen soils often include isolated patches of gravel or sand, and small outcroppings of the older embedded strata. This same rule of small included out-crops and isolated patches applies to every colour division of the map. The *Blue** or Clay soils include the Clays of the

* The Red Keuper Marls of the Isle of Axholme (Nat. Hist. Div. 1) are coloured *Blue* in the map, but owing to the fact that lime enters into their composition, the Flora approximates to that of the Oolitic Limestone (the *Yellow* of the map) rather than to that of the Boulder and other Clays.

Lower, Middle, and Upper Lias, the Oxford and Kimeridge Clays, the Tealby Clays, and Boulder Clay. The *Pink* or Gravel and Sand soils include the Spilsby Sandstone (of the Neocomian), Blown Sands, and River Gravel and Sand. The *Green* or Chalky soils include the Lower and Middle Chalk. The *Yellow* or Limestone soils include the Lower Oolite series. For further details naturalists must be referred to the maps and memoirs of the Geological Survey. It so happens that the whole of Lincolnshire has been described in Survey memoirs as very few other counties have been. There are four cheap memoirs which take in nearly the whole of the county. Their titles are as follows :—

1. The Geology of the County around Lincoln, price 3/-.
2. The Geology of East Lincolnshire (Louth, Alford, and Spilsby), price 3/6.
3. The Geology of S.W. Lincolnshire (Ancaster, Grantham, etc.), price 4/-.
4. The Geology of parts of N. Lincolnshire and S. Yorkshire (Frodingham, Brigg, Caistor, etc.), price 2/-.

The best map for field work is the index map to the six inch Ordnance Survey. It has the parishes printed in colours and the roads all shown. It can be obtained from Messrs. Stanford, Cockspur Street, Charing Cross, London, S.W.

THE PLACE NAME LIST.

The following alphabetical list gives the name and division number of every parish, township, hamlet, and remarkable physical feature of the county, such as fens, hills, commons, woods and waters,—when these places have a name of their own—to be found in gazetteers, directories, and maps, new and old, which have come under my observation. In the rare case where a parish is scattered in separate departments lying at a distance from one another, or a wood, with a distinctive name, runs continuously from one parish into the next on the boundary line of a division, two—only in one case three—numbers are required to indicate the exact spot where an observation might be made or a specimen taken. The spelling of these place-names is that adopted by the Post Office Directory, or if not found there, which was most frequently met within the books and maps consulted.

The contractions used in this place name list are the following.

E.—East.	G.—Great.	L.—Little.
M.—Middle.	N.—North.	Pl.—Plantation.
S.—South.	W.—West.	Wd.—Wood.

The words 'both' or 'all' in parentheses after a parish name in this list implies that both or all the parishes of this name are in the division indicated.

Abney Wood ...	15	Aveland ...	16	Beltoft ...	1
Aby ...	11	Axeltree Hurn ...	9	Belton (Grantham)...	15
Acthorpe ...	8	Aylesby ...	4	Belton-in-the-Isle ...	1
Acres (The) ...	14	Ayscoughfee Hall ...	18	Bendon's Cover ...	5
Addlethorpe ...	11	Azeby ...	14	Benington ...	12
Agthorpe Wood ...	8			Bennington (Long)...	15
Ailby ...	11	Back Oak Wood ...	16	Bennington Grange...	15
Ailesham ...	3	Badger Hills ...	3	Benniworth ...	7
Aisby (Gainsborough)	5	Badger Hills ...	4	Betty Green...	9
Aisby (Grantham) ...	14	Badger Moor Wood ...	7	Bickar ...	17
Aisthorpe ...	6	Bag Enderby ...	10	Bigby ...	3
Alford ...	11	Bagmoor ...	2	Billingborough ...	16
Algarkirk ...	17	Bamburgh ...	7	Billinghay ...	14
Algarkirk Allotment	14	Bamber Bridge ...	9	Bilsby ...	11
Alkborough ...	2	Bardney ...	7	Binbrook ...	8
Allen's Wood ...	3	Barf (Beelsby) ...	4	Birch Holt ...	13
Allington (E. & W.)	15	Barf (Blankney) ...	13	Birch Plot ...	13
Althorpe ...	1	Barf (Howsham) ...	3	Birch Wood...	5
Alvingham ...	8	Barholme ...	16	Bird Hag ...	10
Amberhill ...	17	Barkstone ...	15	Birdock Gate ...	15
Amcotts ...	1	Barkwith (E. & W.)	7	Birds' Drove ...	17
Ancaster ...	15	Barlings ...	6	Birke Wood...	7
Ancroft Fen ...	1	Barnacle Pits ...	15	Birkholme ...	15
Anderby ...	11	Barnetby-le-Wold ...	3	Birk's Wood ...	10
Ann Cover ...	3	Barnoldby-le-Beck ...	4	Birtherpe ...	16
Anthony's Clump ...	3	Barnsdale (Eagle) ...	13	Biscathorpe ...	8
Anthony's Cover ...	3	Barrowby ...	15	Bishop Bridge ...	5
Anwick ...	14	Barrow-upon-Humber	3	Bishop Norton ...	5
Apley ...	7	Barton-upon-Humber	3	Bitchfield ...	15
Appleholme...	8	Bassingham ...	13	Blackmills ...	3
Appleby ...	2	Bassingthorpe ...	15	Blackmoor ...	13
Asfordby ...	11	Baston ...	16	Blankney ...	13
Asgarby (Sleaford) ...	14	Baumber ...	7	Bleasby ...	7
Asgarby (Spilsby) ...	10	Bayard's Leap ...	13	Bloxholm ...	14
Ashby (Brigg) ...	2	Bay Hall ...	12	Blow Wells (Barton)	3
Ashby (Grimsby) ...	4	Bayons Manor ...	7	Blow Wells	
Ashby (Partney) ...	11	Beacon Hill (Barton)	3	(Little Coates)	4
Ashby (West) ...	10	Beacon Hill		Blow Wells (Tetney)	9
Ashby-de-la-Laund...	13	(Marsh Chapel)	9	Blubber Hill ...	13
Ashby Puerorum ...	10	Beacon Hill		Blue Hills ...	11
Ash Holt ...	7	(Thorpe-on-the-Hill)	13	Blyborough ...	5
Ash Lound ...	13	Beacontorpe ...	4	Blyton ...	5
Aslackby ...	16	Beadhouse Wood ...	10	Boat Mere Creek ...	18
Asserby ...	11	Beats (G. and L.) ...	10	Bogmoor (Manton)...	2
Asterby ...	8	Beckering ...	7	Bole Ferry ...	6
Aswardby		Beckingham...	13	Bolingbroke...	10
(Falkingham)	14	Beckingham Shores		Bonby ...	3
Aswardby (Spilsby)...	11	(Twigmoor)	2	Bonsdale ...	5
Atterby ...	5	Becklands ...	4	Bonthorpe ...	11
Aubourn ...	13	Bedlam Wood		Boothby Graffoe ...	13
Audleby ...	3	(Brocklesby)	3	Boothby-in the-Marsh	11
Aukborough ...	2	Bedlam Wood		Boothby Pagnall ...	15
Aunby ...	16	(Wainfleet St. Mary)	12	Booths ...	13
Aunsby ...	14	Beech Holt ...	14	Boston ...	12 and 17
Austendyke ...	18	Beelsby ...	4	Boswell ...	8
Austen Fen ...	9	Beesby (Hawerby) ...	8	Botany Bay ...	9
Austerby ...	16	Beesby-in-the-Marsh	11	Bottesford ...	2
Auster Wood ...	16	Belchford ...	10	Boughton ...	14
Autby ...	8	Belleau ...	11	Bounston Hill ...	14
Authorpe (Muckton)	8	Belmont ...	15	Boultham ...	13
Authorpe		Belmount ...	10	Bourn ...	16
(Hogsthorpe)	11	Belnie ...	17	Bowin ...	16

Bowland's Cover ...	4	Burnt Wood ...	13	Catley ...	14
Bowthorpe ...	16	Burringham ...	2	Cawkwell ...	8
Braceborough ...	16	Burtoft ...	17	Cawthorpe (L.) ...	8
Bracebridge ...	13	Burton-by-Lincoln ...	6	Cawthorpe (Bourn)...	16
Braceby ...	15	Burton Coggles ...	15	Cawood Hall ...	17
Bracken ...	13	Burton Ferry ...	6	Cay Leys Wood ...	3
Brackenborough ...	8	Burton Gate... ..	6	Caythorpe ...	13
Brackendale Cover ...	13	Burton Pedwardine... ..	14	Central Wingland ...	18
Bracken Pl....	13	Burton-on-Stather ...	2	Chapel Hill ...	14
Bradley ...	4	Burton Slate Wood... ..	15	Chapel (Mumby) ...	11
Braithing Bridge ...	13	Burwell ...	8	Chase Hill ...	3
Brakin ...	1	Bushy Leys ...	16	Cheal ...	17
Brakon Wood ...	10	Buslingthorpe ...	7	Cherry Holt... ..	15
Bramble Holt ...	13	Butler's Pl. ...	3	Cherry Willingham... ..	6
Brampton ...	6	Butterbump ...	11	Church End... ..	12
Brampton Firs ...	3	Butterwick (Boston) ..	12	Church Town ...	1
Brand End Plot		Butterwick (East) ...	2	Cindersom Well ...	13
(G. and L.)	17	Butterwick (West) ..	1	Claxby (Alford) ...	11
Brandon ...	15	Button Cap Holt ...	11	Claxby (Normanby) ..	7
Brandy Wharf ...	5	Byard's Leap ...	13	Claxby Pluckacre ...	10
Bransby ...	6	Bytham (Castle) ...	15	Clay Hills Wood ...	15
Branston ...	13	Bytham (Little) ...	15	Claypole ...	15
Branswell ...	14			Claythorpe ...	11
Brant Broughton ...	13	Cabbage Wood ...	14	Cleatham ...	5
Bratland's Cover ...	4	Cabourn ...	3	Clee ...	4
Bratoft ...	11	Cadeby ...	8	Cleethorpes ...	4
Brattleby ...	6	Cadney ...	3	Clixby ...	3
Brauncewell... ..	14	Cadwell ...	8	Clough ...	17
Breachom's Wood ...	16	Caenby ...	6	Clough Bridge ...	11
Bready Wood ...	15	Caistor ...	3	Cloven Hill ...	10
Break's Holt ...	13	Calceby ...	11	Clump Hill ...	7
Breeder Hills ...	15	Calcethorpe ..	8	Coates (G.) ...	4
Bridge End ...	16	Callow ...	7	Coates (L.) ...	4
Brigg (Glamford) ...	3	Cammingham ...	6	Coates (N.) ...	9
Brigsley ...	4	Campney Lane ...	7	Coates (Willingham) ..	6
Brindwell ...	16	Candle Bottom ...	10	Cocked Hat Pl. ...	13
Brinkhill ...	10	Candlesby ...	11	Cockerington	
Broadgate ...	18	Canwick ...	13	(N. and S.)	8
Broadham's Cover ...	2	Careby ...	16	Cocklode Wood ...	7
Brocklesby ...	3	Carlby ...	16	Cold Bath House ...	6
Broom Hill ...	13	Carlton-by-the-Ashes ..	15	Coldham Quarter ...	13
Brothertoft ...	17	Carlton (Castle) ...	8	Cold Hanworth ...	6
Broughton (Brant) ...	13	Carlton (G.)... ..	8	Coldstead ...	7
Broughton (Brigg) ...	2	Carlton-le-Moorlands ..	13	Coleby (Lincoln) ...	13
Broughton Clays ...	13	Carlton (L.)... ..	8	Coleby (West Halton) ..	2
Broxholme ...	6	Carlton (N.) ...	6	College Wood ...	3
Brumby ...	2	Carlton Scroop ...	15	Collow ...	7
Buckminster... ..	16	Carlton (S.) ...	6	Colsterworth ...	15
Bucknall ...	7	Carr Holt ...	4	Combe Hill (Denton) ..	15
Bulby ...	15	Carr House ...	1	Common Side ...	12
Bull Close Holt ...	13	Carr (W.) ...	1	Coney Wood ...	11
Bullington (Goltho)... ..	7	Carrington ...	10	Coneysby ...	2
Bullington (Friskney) ..	12	Caseby Wood ...	15	Coningsby ... 10 and	17
Bully Hills ...	8	Casewick ...	16	Conisholme ...	9
Bully Wells ...	14	Casthorpe ...	15	Conyer's Wood ...	7
Bumble Pit ...	14	Castle Bytham ..	15	Cooksey's Cover ...	6
Bunker's Hill ...	10	Castle Carlton ...	8	Copping Syke ...	10
Burgh Beacon ...	7	Castle Dyke Wood... ..	14	Corby ...	15
Burgh-in-the-Marsh ..	11	Castle Hill Place ...	1	Corking Bridge ...	16
Burgh-upon-Bain ...	8	Castle Hills ...	3	Corringham (G. & L.) ..	5
Burnham (The Isle) ..	1	Castlethorpe ...	2	Cotehouses ...	5
Burnham (Ulceby) ...	3	Cathorpe ...	11	Cotes Grange ...	8

Counessome Cross ...	8	Ding Dong ...	7	Epworth ...	1
Counter Close ...	2	Dirrington ...	14	Eskham ...	9
Counter Drain ...	16	Dobbin Wood ...	16	Evedon ...	14
Counthorpe ...	15	Dob Wood ...	16	Ewerby ...	14
Court Leys ...	13	Doddington			
Covenham (both) ...	8	(Skellingthorpe) ...	13	Faldingworth ...	7
Covers (The) ...	8	Doddington (Dry) ...	15	Falkingham ...	16
Covey Wood ...	11	Dogdyke ...	14	Farforth ...	8
Cowbank ...	11	Donington (Spalding) ...	17	Farlthorpe ...	11
Cowbit ...	18	Donington-on-Bain ...	8	Farthorpe ...	10
Cowdyke Pl. ...	8	Donna Nook ...	9	Fellands ...	12
Cowgate Copse ...	16	Dorrington ...	14	Fen (E.) ...	12
Cow's Dyke ...	16	Dotsey Wood ...	15	Fen (W.) ...	10
Coxey Hills ...	8	Dove Cote ...	8	Fen Wood ...	6
Crab Tree Holt ...	8	Dovedale ...	8	Fenby ...	4
Craise Lound ...	1	Dow Dyke ...	17	Fen Houses	
Cranwell ...	14	Dowsby ...	16	(Somercotes) ...	9
Cream Pot Wood ...	7	Dovesdale ...	18	Fen Houses	
Creeton ...	15	Drainage Marsh ...	17	(Wigtoft) ...	17
Cressy Hall ...	17	Drainage Fen ...	17	Fenton (Beckingham) ...	13
Croft ...	11	Driby ...	11	Fenton (Kettlethorpe) ...	6
Crofton ...	14	Drove End ...	18	Ferriby (South) ...	3
Crosby ...	2	Dry Doddington ...	15	Ferry Corner Plot ...	17
Cross Close Holt ...	13	Dukes Wood ...	15	Ferry (E.) ...	5
Crossholme ...	5	Dumpin's Nook ...	10	Ferry Gate Bottom ...	3
Cross Keys Wash ...	18	Dunham Bridge ...	6	Ferry (High) ...	10
Cross Moors ...	7	Dunholme ...	6	Ferry (W.) ...	1
Crowland ...	16	Dunkirk Cover ...	3	Fillingham ...	6
Crowle ...	1	Dunsby St. Andrew ...	14	Fire Beacon ...	8
Croxby ...	4	Dunsby (Bourn) ...	16	Firsby (E. and W.) ...	6
Croxton ...	3	Dunstall ...	5	Firsby (Wainfleet) ...	11
Culverthorpe ...	14	Dunston ...	13	Fishtoft ...	12 and 17
Cumberworth ...	11	Dyke (Bourn) ...	16	Fiskerton ...	6
Curdle Well ...	13	Dyke Fen ...	16	Fitties (The) ...	9
Cuxwold ...	4	Dyke Outgang ...	16	Flawford ...	13
		Dyke Wood ...	16	Fleet (all) ...	18
Dalby ...	11			Flixborough ...	2
Dalderby ...	10	Eagle ...	13	Floors ...	12
Dales Bottom ...	4	Eagle Barnsdale ...	13	Fockerby ...	1
Dame Amos' Holt ...	18	Eagle Hall ...	13	Fodder Dyke Bank ...	12
Dam Ring ...	15	Eagle Woodhouse ...	13	Foldhill ...	12
Dandy Holt ...	13	Ealand ...	1	Folkingham ...	16
Dane Hill ...	16	East Fen ...	12	Folly's Wood ...	2
Daubers Hill ...	4	East Ferry ...	5	Fonaby ...	3
Dawesmere ...	18	Eastholme ...	9	Fordington ...	11
Daw Wood ...	10	Eastlands Gorse ...	16	Forty Foot Bank ...	17
Decoy Cottages		Eastoft ...	1	Fosdyke ...	17
(Brigg) ...	2	Easton ...	15	Foston ...	15
Decoy Plantation		East Lound ...	1	Fotherby ...	8
(Grimsby) ...	4	East Thorpe ...	6	Foxendale ...	10
Deep Dale ...	8	Eastville ...	12	Foxhole Wood ...	16
Deeping (E. & W.) ...	16	Eaudyke ...	17	Foxholt ...	13
Deeping St. James ...	16	Eaugate ...	18	Frampton ...	10, 12 and 17
Deeping Market ...	16	Edenham ...	16	Freiston ...	12 and 17
Deeping St. Nicholas ...	16	Edlington ...	10	Friesland ...	13
Deer Park Wood ...	16	Elkington (N. & S.) ...	8	Friesthorpe ...	7
Delta Cover ...	3	Ellarow Wood ...	12	Frieston (Boston)	
Dembleby ...	14	Elsey ...	11	12 and 17	
Denton ...	15	Elsham ...	3	Frieston (Caythorpe) ...	13
Derrythorpe ...	1	Elsthorpe ...	16	Friskney ...	12
Dexthorpe ...	11	Emswell ...	5	Frist ...	17
Digby ...	14	Enderby (all) ...	10	Frith Bank ...	10

Friths (The)...	17	Grantham ...	15	Halton Wood ...	16
Frithville ...	10 and 12	Grantham Grange ...	15	Hameringham ...	10
Frodingham ...	2	Grantham's Cross ...	8	Hamilton Hill ...	15
Froghall (Cadney) ...	3	Grasby ...	3	Hammond Beck ...	17
Froghall (Wildmore) ...	10	Grass Hill Pl. ...	15	Hampshire Pl. ...	11
Frognall ...	16	Grayingham... ..	5	Hanbeck ...	14
Fulbeck ...	13	Great Beats ...	10	Hanby ...	15
Fulletby ...	10	Great Brand End Plot ...	17	Hang Wood ...	11
Fullsby ...	16	Great Common ...	18	Hannah ...	11
Fulnetby ...	7	Greatford ...	16	Hanthorpe ...	16
Fulney ...	18	Grebby ...	11	Hanworth (Cold) ...	6
Fulsby ...	16	Greenfield ...	11	Hanworth (Potter) ...	13
Fulstow ...	8	Greenhill ...	5	Harding's Pl. ...	3
		Greenwalks ...	15	Hardwick ...	6
Gainsborough ...	5	Greetham ...	10	Hare Booth ...	7
Gainsthorpe... ..	2	Greetwell ...	6	Hareby ...	10
Gallow Dale ...	13	Greetford ...	16	Harlaxton ...	15
Gallows Dale ...	6	Greygreen ...	1	Harmston ...	13
Game Traps Wood..	11	Grey Leys ...	14	Harpwell ...	5
Gantoft ...	11	Grimblethorpe ...	8	Harrington ...	10
Garnsgate ...	18	Grime's Holt ...	4	Harrowby ...	15
Garthorpe ...	1	Grimoldby ...	8	Harts' Grounds ...	17
Garwick ...	14	Grimsby (G.) ...	4	Hartsholme ...	13
Gate Burton... ..	6	Grimsby (L.) ...	8	Haseby ...	14
Gatliffe Wood ...	7	Grimsthorpe ...	16	Hasethorpe ...	11
Gaumer Hill ...	8	Grisels Bottom ...	8	Hatcliffe ...	4
Gauntlet ...	17	Grubhill ...	6	Hathow ...	6
Gauthby ...	7	Guanockgate ...	18	Hatton ...	7
Gayton (both) ...	8	Gulholme ...	7	Haugh ...	11
Gazebo ...	9	Gunborough Wood... ..	16	Haugham ...	8
Gedney ...	18	Gunby (St. Nicholas) ...	15	Haughton ...	8
Gelston ...	15	Gunby (Spilsby) ...	11	Haven Bank ...	10
Gibbet Hills ...	17	Gunness ...	2	Haverholme Priory... ..	14
Gibraltar Point ...	11	Gunthorpe ...	1	Hawerby ...	8
Gilby... ..	5	Gunthorpe Sluice ...	18	Hawstead Wood ...	10
Gillian Holt... ..	8	Guthramcote ...	16	Hawthorn Hill ...	10
Gillswell Pl. ...	11			Hawthorpe ...	15
Gillwood ...	8	Habertoft ...	11	Haxey ...	1
Gippel ...	15	Habrough ...	3	Haydor ...	14
Gipsey Bridge ...	10	Hacconby ...	16	Hayes (The) ...	5
Girsby ...	8	Haceby ...	14	Healing ...	4
Glanford Brigg ...	3	Hackthorn ...	6	Heapham ...	6
Glentham ...	5	Haddington... ..	13	Heck Dyke ...	1
Glentworth ...	6	Hagnaby (Hannah) ...	11	Heckington (both) ...	14
Goat Close Pl. ...	8	Hagnaby (Spilsby) ...	10	Heighington ...	13
God's Cross ...	1	Hag Wood ...	13	Hell Furze ...	8
Gokewell ...	2	Hagworthingham ...	10	Hell Hole ...	14
Goltho ...	7	Hainton ...	7	Hell Holt ...	13
Gonerby (G.M. & L.) ...	15	Hale (G. & L.) ...	14	Helpringham ...	14
Good Copse... ..	1	Halfway Houses ...	13	Helsey ...	11
Goody Hatchem ...	4	Hall Gate ...	18	Hemingby ...	8
Gorse Hill ...	14	Hall Hills ...	12	Hemswell ...	5
Gosberton ...	17	Halliday Hill ...	3	Hendale Wood ...	3
Goulceby ...	8	Hallifers ...	6	Henhole Wood ...	4
Gould Dyke Bank ...	18	Hallington ...	8	Hericho Wood ...	15
Goulsby ...	8	Hallowells' Hills ...	8	Hermitage Hill ...	11
Goxhill ...	3	Halltoft End ...	12	Heron Wood	
Graby ...	16	Haltham ...	10	(Broughton) ...	2
Grainsby ...	8	Halton (E.)... ..	3	Heron Wood	
Grainthorpe... ..	9	Halton Holgate ...	11	(Doddington) ...	13
Grandfather's Wood ...	13	Halton Skitter ...	3	Hibaldstow ...	2
Grange-de-Ling ...	6	Halton (W.) ...	2	High Bibers Hill ...	11

High Ferry ...	10	Hurst Priory ...	1	Kirton (Lindsey) ...	5
Highfield Wood ...	4	Huttoft ...	11	Knaith ...	6
High Hall Wood ...	10	Hykeham (N. & S.) ...	13	Knowle's Wood ...	7
High Wood ...	13			Knowle's Carr ...	10
High Wood Decoy ...	12	Immingham ...	4	Kyme (N. & S.) ...	14
Hill Dyke ...	10	Infield Wood ...	14	Kyme Tower ...	12
Hill Six Acres ...	17	Ingham ...	6		
Hills of the Slain ...	11	Ingleby (all) ...	6	Laceby ...	4
Hinkerson's Fen ...	18	Ingoldmells ...	11	Lady Wood ...	16
Hirst Priory ...	1	Ingoldsby ...	15	Lambcroft ...	8
Hoffleet Stow ...	17	Ingram Gorse ...	7	Langham ...	11
Hogsthorpe ...	11	Irby-on-Humber ...	4	Langmere Field ...	11
Hogtree Wood ...	15	Irby-in-the-Marsh ...	11	Langmoor Cover ...	3
Holbeach (all) ...	18	Irford ...	4	Langrick ...	10 and 17
Holdingham ...	14	Irnham ...	15	Langrville ...	10 and 17
Holland (E.) ...	12	Iver's Wood ...	7	Langtoft ...	16
Holland Fen 14 and	17			Langton (Horncastle) ...	10
Holland Fen Chapel	14	Jackson's Leys 3 and	4	Langton Low ...	7
Holland House ...	18	Jail Pl. ...	11	Langton (Spilsby) ...	11
Holland (New) ...	3	Jenny's Wood ...	8	Langton (Wragby) ...	7
Holme (Bottesford) ...	2	Jericho Wood ...	15	Langworth ...	6
Holmes (Epworth) ...	1	Jock Hedge ...	11	Laughterton ...	6
Holmes (Louth) ...	8	Jubilee Pl. ...	11	Laughton	
Holmes Common ...	6	Jumping Mill ...	7	(Falkingham) ...	16
Holton-le-Clay ...	8			Laughton (Gainsbro') ...	5
Holton-le-Moor ...	7	Kate's Bridges ...	16	Lavington ...	15
Holton (Wragby) ...	7	Kay Wood ...	7	Lawless Wood ...	7
Holtonbeck Gorse ...	10	Keadby ...	1	Lawn Wood (both) ...	10
Holywell ...	15	Keal (all) ...	10	Law's Wood ...	14
Holy-Well Wood ...	10	Keddington ...	8	Laythorpe ...	10
Home Decoy ...	12	Keelby ...	4	Lea ...	6
Home Wood ...	7	Keisby ...	15	Leadenham ...	13
Honey Close Pl. ...	3	Kelby ...	14	Leake (both) ...	12
Honington ...	15	Kelfield ...	1	Leasingham ...	14
Hood's Wood ...	16	Kellwell ...	2	Legbourne ...	8
Hopland Pl. ...	11	Kelsey (N.) ...	3	Legsby ...	7
Hop Lane ...	7	Kelsey (S.) ...	7	Lenton ...	15
Horbling ...	16	Kelstern ...	8	Leverton ...	12
Horkstow ...	3	Kenwick (Louth) ...	8	Lily Wd. (Broughton) ...	2
Horncastle ...	10	Ketsby ...	10	Lily Wood (Lea) ...	6
Horse Acre Wood ...	7	Kettleby ...	3	Limber (G. and L.) ...	3
Horse Shoe Clump ...	8	Kettlethorpe ...	6	Lincoln ...	6 and 13
Horsington ...	7	Kew's Holt ...	6	Lincoln Heath ...	13
Hougham ...	15	Kexby ...	6	Linwood (Blankney) ...	13
Hough-on-the-Hill ...	15	Kib Wood ...	2	Linwood (Rasen) ...	7
Housham (Cadney) ...	3	Killingholme (N. & S.) ...	3	Lissington ...	7
Housham		Kinaid Ferry ...	1	Listoft ...	11
(Haddington) ...	13	Kingerby ...	7	Little Beats ...	10
Howdale ...	9	Kingsforth Hall ...	3	Little Brand End Plot ...	17
Howell ...	14	Kingsthorpe ...	7	Little Decoy ...	12
How Hills ...	16	Kingston Wood ...	16	Little Hawe Wood ...	15
Howlets Gate ...	11	King's Wood ...	10	Little Lond'n (Ulceby) ...	4
Howsham ...	3	Kirkby (E.) ...	10	Little London	
Hubbert's Bridge ...	17	Kirkby Green ...	13	(Wisbech) ...	18
Hudson's Cover ...	3	Kirkby-la-Thorpe ...	14	Little Sale Wood ...	13
Humberstone ...	9	Kirkby-by-Rasen ...	7	Little Scrubs ...	7
Humby (G. & L.) ...	15	Kirkby Underwood ...	16	Little Thicket ...	1
Hundleby ...	10	Kirkby-on-Bain ...	10	Littleworth (Goxhill) ...	3
Hundon ...	3	Kirkstead ...	10	Littleworth (Spalding) ...	16
Hungar Hill ...	4	Kirmington ...	3	Lobthorpe ...	15
Hungerton ...	15	Kirkmond-le-Mire ...	8	Londonthorpe ...	15
Hurn's End ...	12	Kirton (Boston) ...	10 & 17	Long Bennington ...	15

Long Hills ...	13	Merrishaw's Pl. ...	14	Newton-le-Wold ...	8
Long Holt ...	10	Messingham... ..	2	Newton-on-Trent ...	6
Long Nursery ...	14	Metheringham ...	13	New York	10
Long Owersby ...	7	Mickleburg	11	Nineteen Pound ...	16
Long Sutton ...	18	Mickleholme	6	Nob Hill	8
Long Wood... ..	15	Mickley Wood	15	Nocton	13
Lound	16	Middle Carr... ..	4	Norlands	10
Louth	8	Middle Pl.	13	Normanby	
Loveden Hill ...	15	Middle Rasen	7	(Scunthorpe) ...	2
Lower Barf Wood ...	13	Middlethorpe	10	Normanby (Spittal) ...	6
Lower Daw Wood ...	10	Midville	12	Normanby (Stow) ...	6
Lowfield	13	Miles Cross Hill ...	11	Normanby-le-Wold... ..	7
Ludborough... ..	8	Miles Gorse Hill ...	11	Normanton	15
Luddington	1	Mill Lane	7	Northbeck	14
Ludford (G. & L.) ...	8	Millthorpe	16	Northfield	3
Ludney	9	Milner Wood	3	North Forty Foot	
Lusby	10	Miningsby	10	Bank	17
Lutton	18	Minting	7	Northlands	10
		Moat Orchard	14	Northholme... ..	12
Mablethorpe	9	Mockery Wood	15	Northorpe	
Magpie Holt	11	Money Bridge	17	(Donington) ...	17
Maidenwell	8	Monks' Dyke	8	Northorpe(Gainsbro') ...	5
Maidsdyke Bridge ...	16	Monks' Hall	17	Northorpe (Thurlby) ...	16
Major Wood	3	Monks' Liberty	6	Northspring Wood ...	7
Maltby (Legbourne) ...	8	Monksthorpe	11	Northway Pond	13
Maltby-le-Marsh ...	11	Monks' Wood	16	Norton (Bishop)	5
Maltby (Raithby) ...	8	Moorby	10	Norton Disney	13
Manby (Brigg)	2	Moorhouses	10	Norton Wood	6
Manby (Louth)	8	Moortown	7	Nun Cotham	3
Manthorpe (Bourn) ...	16	Morton (Bourn)	16	Nun Ormsby	8
Manthorpe(Granth'm) ...	15	Morton (Gainsbro')... ..	5		
Manton	2	Morton (Lincoln) ...	13	Oaklands	4
Mareham-le-Fen	10	Mosswood	1	Obthorpe	16
Mareham-on-the-Hill ...	10	Moulton	18	Old Don Pl.... ..	1
Marehills Wood	3	Mown Rakes	17	Old Orchard	13
Marhams (The)	14	Muckton	8	Old Park Wood	15
Markbush Wood	6	Mumby	11	Old Pits Wood	14
Markby	11	Munthorpe	11	Old Wood	13
Market Bridge	7			Orby... ..	11
Market Deeping	16	Nab Wood	16	Orford (Binbrook)... ..	8
Market Rasen	7	Natty Cake Wood ...	4	Orford	
Market Stainton	7	Navenby	13	(Stainton-le-Vale) ...	4
Marlborough	13	Neap Houses	2	Orgarth Hill	8
Marsh (The)	18	Nelsam	16	Ormsby (N.)	8
Marshall Wood	11	Nethergate	1	Ormsby (S.)... ..	10
Marsh Bank	17	Nettleham	6	Osbourneby	14
Marsh Chapel	9	Nettleton	3	Oseby	14
Marston	15	Neville Wood	13	Osgodby (Grantham) ...	15
Martin (Blankney) ...	13	Newball	7	Osgodby (Rasen)	7
Martin (Horncastle) ...	10	Newbigg	1	Otby... ..	7
Marton	6	Newbold	7	Outgate	12
Masson Hall	12	Newclose Wood	3	Outhorpe	15
Mavis Enderby	10	New Decoy Wood ...	13	Owersby (N. and S.) ...	7
Mawthorpe (Well) ...	11	New England	10	Owmby (Searby)	3
Mawthorpe		New Holland	3	Owmby (Spittal)	6
(Willoughby)	11	Newland	1	Owston	1
Mayo Hill Clump	7	Newpark Wood	7	Oxcomb	10
Meagrim Hall	11	Newsham	3	Ozeby	14
Medlam	10	Newstead	3		
Megtree Hill	13	Newton-by-Falking-		Paddock Pl.... ..	13
Melton Ross	3	ham	14	Panton	7
Mere... ..	13	Newton-by-Toft	7	Park House	17

Parkinson's Wood ...	10	Ridge Spires ...	14	Scarle (N.) ...	13
Partney ...	11	Ridings Wood ...	7	Scartho ...	4
Patching Knives ...	14	Rigbolt ...	17	Scawby ...	2
Patman's Wood ...	14	Rigsby ...	11	Scitler Wood ...	16
Patstone Wood ...	14	Ring Wood ...	11	Scopwick ...	13
Pauline's Garden ...	16	Rippingale ...	16	Scothern ...	6
Paunton (G. and L.) ...	15	Risby (High) ...	7	Scotter ...	5
Peakhill ...	18	Risby (Low) ...	2	Scotterthorpe (Bourn) ...	16
Peaks Fox Cover ...	4	Risby (Rasen) ...	7	Scotterthorpe (Brigg) ...	5
Peaterills (The) ...	8	Risby (Roxby) ...	2	Scottlethorpe ...	16
Pelham's Lands ...	17	Risegate ...	17	Scotton ...	5
Penny Hill ...	18	Riseholme ...	6	Scott's Wood ...	7
Pepper Gowt Plot ...	12	Rise Pl. ...	13	Scotwater Bridge ...	13
Pickhill Wath ...	8	Riverhead (Ancholme) ...	7	Scot Willoughby ...	14
Pickworth ...	15	Riverhead (Lud) ...	8	Scrafield ...	10
Piggin's Gorse ...	14	Robin Wood ...	14	Scrane End ...	12
Pilham ...	5	Rookery Clump ...	7	Scredington ...	14
Pillar, The (Dunston) ...	13	Ropsley ...	15	Scremby ...	11
Pillow Wood ...	16	Rosedale ...	7	Scrivelsby ...	10
Pinchbeck ...	17	Roseshole ...	10	Scrope ...	18
Podehole ...	17	Rothwell ...	4	Scrubbly Wood ...	8
Pointon ...	16	Roughton ...	10	Scrub Close Wood ...	4
Poke's Hole ...	8	Rough Wood ...	6	Scrub Hill ...	10
Pondclose Wood ...	3	Round Holt ...	13	Scrub Holt ...	4
Ponton (G. and L.) ...	15	Rowston ...	13	Scrubs (The) ...	10
Pool Decoy Wood ...	12	Roxby ...	2	Scrub Wood ...	7
Poolham Hall ...	10	Roxham ...	14	Sculler Wood ...	16
Poplar Walk ...	3	Roxholme ...	14	Scunthorpe ...	2
Postland ...	16	Roxton ...	4	Scupholme ...	9
Potter Hanworth ...	13	Royalty Farm ...	17	Searby ...	3
Prim Fen ...	8	Rubbing Pit Cover ...	8	Seas End ...	18
Primrose Hill ...	3	Ruckholme ...	3	Sedgebrook ...	15
		Ruckland ...	8	Sempringham ...	16
Quadrang ...	17	Ruskington ...	14	Seven Acres Parish ...	10
Quaker's Hill ...	11	Ryehill Cover ...	3	Shaw's Decoy ...	12
Quarrington ...	14	Ryland ...	6	Shefford ...	15
Quebeck Wood ...	6			Shillingthorpe Hall ...	16
Quick Gate ...	16	St. Anne's Well ...	13	Shire Wood ...	10
		St. Helen's Cover ...	3	Short Ferry ...	6
Raithby (Maltby) ...	8	St. John's Wood ...	16	Showell Spring ...	8
Raithby (Spilsby) ...	10	St. Lambert's Farm ...	18	Shuff Fen ...	17
Rakes Farm ...	17	Saleby ...	11	Shurk Wood ...	7
Ranby ...	7	Salmonby ...	10	Sibsey ...	10
Rand ...	7	Salter ...	11	Silk Willoughby ...	14
Rasen ...	7	Saltfleet ...	9	Simon Weir ...	17
Rauceby (N. & S.) ...	14	Saltfleetby ...	9	Sixhills ...	7
Ravendale (E. & W.) ...	4	Salvin Wood ...	5	Sixhundreds ...	14
Raven Moor ...	7	Samber Wood ...	7	Skegness ...	11
Ravens Bank ...	18	Sandfield ...	11	Skellingthorpe ...	13
Raventhorpe ...	2	Sandtoft ...	1	Skelton's Decoy Wd. ...	12
Reasby ...	7	Santon (High) ...	2	Skendleby ...	11
Redbourn ...	5	Santon (Low) ...	2	Skidbrook ...	9
Redhill ...	5	Sapperton ...	15	Skiers Flash ...	1
Red Leys ...	8	Sausthorpe ...	11	Skillington ...	15
Redwell Spring ...	8	Sawcliffe (Roxby) ...	2	Skinnaund ...	13
Reedings (The) ...	10	Saxby (Barton) ...	3	Skirbeck ...	12
Reedmere Holt ...	4	Saxby (Rasen) ...	6	Skirbeck Quarter ...	17
Reepham ...	6	Saxilby ...	6 and 13	Slackholme ...	11
Reeve's Cover ...	13	Scabcroft ...	2	Sleaford ...	14
Reston (N. & S.) ...	8	Scalp (The) ...	17	Sleeken End ...	11
Revesby ...	10	Scamblesby ...	8	Sloothby ...	11
Ribby ...	4	Scampton ...	6	Smock Skirts ...	16

Snakeholme...	...	7	Stocking Wood	...	13	Tame Wood...	...	1
Snarford	...	7	Stockwith (E.)	...	5	Tanvats	...	13
Snelland	...	7	Stoke Furlong Cover	...	8	Tathwell	...	8
Snipe Dales...	...	10	Stoke (N. and S.)	...	15	Tattershall	...	10
Snitterby	...	5	Stoke Rochford	...	15	Tealby	...	7
Somerby (Bigby)	...	3	Stonepit Wood	...	16	Temple Aslackby	...	16
Somerby (Corringh'm)	...	5	Storton	...	2	Temple Bellwood	...	1
Somerby (Old & New)	...	15	Stourton	...	7	Temple Bruer	...	13
Somercotes (N. & S.)	...	9	Stow (Billingborough)	...	14	Temple Garth	...	5
Somersby	...	10	Stow (Gainsborough)	...	6	Temple High Grange	...	13
Somerton Castle	...	13	Stowe	...	16	Temple Hill...	...	15
Sotby	...	7	Stragglethorpe	...	13	Tennison's Holt	...	4
South Dale Place	...	10	Stroxton	...	15	Tesselated Pavement	...	14
South Fens (Bourn)	...	16	Stroy Wood...	...	15	Tetford	...	10
Southgate	...	14	Strubby (Woodthorpe)	...	11	Tetley	...	1
South-of-the-Witham	...	10	Strubby (Wragby)	...	7	Tetney	...	9
(the parish)	...	10	Strugg's Hill	...	17	Thealby	...	2
Southorpe	...	5	Strunch Wood	...	13	Theddlethorpe (both)	...	9
Southrey	...	7	Stubber Hill	...	15	Thick Thorn	...	7
Southrow	...	7	Stubton	...	15	Thimbleby	...	10
Southwood Malting	...	15	Sturgate	...	2	Thirkington Wood	...	13
Spalding	...	18	Sturton (G. and L.)	...	7	Thomas Wood	...	3
Spanby	...	14	Sturton Harding	...	7	Thonock	...	5
Sparrow Gorse	...	15	Sturton (Scawby)	...	2	Thoresby (N.)	...	8
Speezeland	...	5	Sturton (Stow)	...	6	Thoresby (S.)	...	11
Spellow Hills	...	11	Sudbrook (Grantham)	...	15	Thoresthorpe	...	11
Spilsby	...	11	Sudbrooke (Wragby)	...	6	Thoresway	...	4
Spittal	...	5	Sudthorpe	...	13	Thorganby	...	4
Spittlegate	...	15	Summer Castle	...	6	Thorn Bush...	...	8
Spottle Hill...	...	8	Summer Ings	...	9	Thornholme...	...	2
Spreckle Field	...	14	Sunny Fleet Eau	...	9	Thornton Curtis	...	3
Spridlington...	...	6	Surfleet	...	17	Thornton (Horn'st'le)	...	10
Springfield Cover	...	2	Susworth	...	5	Thornton-le-Fen	...	10
Springs (The)	...	11	Sutterby	...	11	Thornton-le-Moor	...	7
Springthorpe	...	5	Sutterton	...	17	Thorpe (E. and W.)	...	6
Square Wood	...	7	Sutton (Beckingham)	...	13	Thorpe-in-the-Fallows	...	6
Stackforth Hill	...	4	Sutton Fen Allotment	...	14	Thorpe Latimer	...	14
Stain...	...	11	Sutton-in-the-Marsh	...	11	Thorpe-on-the-Hill...	...	13
Stainfield (Hacconby)	...	16	Sutton, Long	...	18	Thorpe St. Peter	...	11
Stainfield (Wragby)	...	7	Sutton-on-Sea	...	11	Thorpe (Tattershall)	...	10
Stainsby	...	15	Sutton St. James	...	18	Thorpe (The)	...	8
Stainton (Langworth)	...	7	Sutton St. Mary	...	18	Thorpe Tilney	...	13
Stainton-le-Hole	...	4	Sutton St. Nicholas	...	18	Threckingham	...	14
Stainton-le-Vale	...	4	Swaby	...	10	Thrunscoe	...	4
Stainton (Market)	...	7	Swallow (Caistor)	...	4	Thurlby (Alford)	...	11
Stainwith	...	15	Swallow Beck	...	13	Thurlby (Bourn)	...	16
Stallingborough	...	4	Swallow Pit...	...	16	Thurlby (Lincoln)	...	13
Stamford	...	16	Swallow Vale	...	4	Thurlby Wood	...	6
Stane	...	11	Swans Holt	...	13	Tiger Holt	...	6
Stank (The)...	...	7	Swarby	...	14	Tillbridge Lane	...	6
Stanmore Hill	...	8	Swaton	...	14	Tilney (Thorpe)	...	13
Stapleford	...	13	Swayfield	...	15	Timberland	...	13
Steeping (G. and L.)	...	11	Swinderby	...	13	Toft (Bourn)	...	16
Stenigot	...	8	Swineshead	...	17	Toft (Newton)	...	7
Stewton	...	8	Swinethorpe	...	13	Toft Hill	...	10
Stewton Nooking	...	8	Swinhope	...	8	Tofts (The)	...	12
Steynby	...	15	Swinn Wood	...	11	Tongue End	...	16
Stickford	...	10	Swinstead	...	15	Top Barf Wood	...	13
Stickney	...	10	Swinthorpe	...	7	Top Cover	...	13
Stixwould	...	7	Syston	...	15	Torksey	...	6
Stockdove Holt	...	13	Tallington	...	16	Torrington (E. & W.)	...	7
Stockhill Wood	...	11				Tothby	...	11

Tothill	11	Water Park	8	Willoughby (West)...	15
Tower Moor	10	Waterside	14	Willoughton... ..	5
Towes (G. and L) ...	8	Waythe	8	Wilsford	14
Towers End	7	Weavers' Lodge ...	14	Wilsthorpe	16
Toynton (All Saints)	10	Weelsby	4	Winceby	10
Toynton (High) ...	10	Welbourn	13	Windle Bridge ...	5
Toynton (Low) ...	10	Welby	15	Winghale	7
Toynton St. Peter ...	11	Well	11	Wingland (Central)...	18
Troy Wood	10	Wellhams	3	Winsover	18
Trusthorpe	11	Well Heads	16	Winteringham ...	2
Tumby	10	Wellingore	13	Winterton	2
Tumman's Wood ...	13	Wellow	4	Winthorpe	11
Tupholme	7	Wellsdale Bottom ...	8	Wirehill	7
Tupholme Priory ...	10	Well Vale	11	Wisby	13
Turf Carr	1	Welton-in-the-Marsh	11	Wispington	7
Turpits Pl.	11	Welton-le-Wold ...	8	Witham (N. & S.) ...	15
Tuttle Rampier ...	9	Welton (Lincoln) ...	6	Witham-on-the-Hill	16
Twigmoor	2	Welton Wood	11	Withcall	8
Twyford	15	Wenghale	7	Withern	11
Tydd (both)	18	Westborough	15	Woldale Trees ...	8
Tytton Hall... ..	17	Westby	15	Wold Newton ...	8
Uckerby	5	West Carr	1	Wood Enderby ...	10
Uffington	16	West End	17	Wood Nook	15
Ulceby (Alford) ...	11	West Fen	10	Woodhall	10
Ulceby (Barton) ...	3	Westgate	1	Woodhall Spa ...	10
Upperthorpe	1	Westhorpe	17	Woodhouse	1
Upton	6	Westlaby	7	Woodside	10
Usselby	7	Westmere Creek ...	18	Woodthorpe	11
Utterby	8	Weston	18	Woolfits Pl.... ..	13
Waddingham	5	Westville	10	Woolsthorpe	15
Waddington... ..	13	West Wood	13	Wootton	3
Waddingworth ...	7	West Woodside ...	1	Worlaby (Brigg) ...	3
Wainfleet (all) ...	12	Whaplode	18	Worlaby (Louth) ...	10
Wainham Beck ...	13	Wharton	5	Wothorpe	16
Waith	8	Whisby	13	Wragby	7
Walcot (Alkborough)	2	White Hall Wood ...	10	Wragholme	9
Walcot (Falkingham)	16	White Pit	10	Wrangle	12
Walcott (Billinghay)	14	White Wood	5	Wrawby	3
Walesby	7	Whitton	2	Wrongsome Holt ...	13
Walkerith	5	Wickenby	7	Wroot	1
Walks (The)	9	Wickham	18	Wyberton ... 10 and	17
Walmsgate	8	Wideham	13	Wyche Drain	11
Waltham	4	Wigtoft	17	Wyham	8
Warfen Ings... ..	9	Wildmore	10	Wykeham (E. & W.)	8
Warmesley Holt ...	8	Wildsworth	5	Wykeham (Spalding)	18
Warren Lodge Wood	15	Wilksby	10	Wykes	17
Wash Gould	18	Willingham (Cherry)	6	Wyville	15
Washingborough ...	13	Willingham (N. & S.)	7	Yaddlethorpe ...	2
Washingdales Wood	4	Willingham (Stow)...	6	Yarborough	8
Waterloo	13	Willoughby (Alford)	11	Yarborough Camp ...	3
Waterloo Wood ...	10	Willoughby (Scot) ...	14	Yawthorpe	5
		Willoughby (Silk) ...	14		

NOTE—COLEOPTERA.

A Swarm of *Ocypus olens*.—I have generally found this insect singly or in small numbers at one place; during a recent visit to Whitby (August 11th this year) I was surprised to find probably fifty specimens within so small a space as thirty yards, under stones near the Abbey.—LEONARD HAWKESWORTH, Bolton Woods, Bradford, Sep. 1st, 1895.

Nov. 1895.

NOTES—ORNITHOLOGY.

East Yorkshire Bird-Notes.—

Hawfinch or Grosbeak (*Coccothraustes vulgaris*). A pair bred here at Hullbank, near Hull, in 1893. The old birds with their young ones remained here until December. They soon became very shy and wary. In Derbyshire they are very numerous; they come from the woods in the early morning; they are very fond of green peas, and do great mischief in the gardens.

Kingfisher (*Alcedo ispida*) is becoming rarer every year. Fifty years ago there was a nest in a rat-hole by the side of my large pond at Hullbank. Ten years ago I stocked my pond with Loch Leven yearling Trout. Two or three Kingfishers came daily for several weeks, and no doubt enjoyed 'trout-fishing. I had not the heart to shoot them. My youngest son then had a favourite cat, which, when she had kittens, used to bring into the kitchen mice, moles, young rats, once a weasel (dead), often live birds, and once a *live* full-grown Kingfisher. How did she catch it? Possibly saw it fly into a rat-hole—or caught it sitting on an overhanging bough, watching for small fish, as I have often seen them.

—B. B. HAWORTH-BOOTH, Hullbank Hall, near Hull, September 17th, 1895.

Large Birds of Prey in Lincolnshire.—In Mr. Cordeaux's interesting paper on bygone Lincolnshire, mention is made of the former abundance of the larger birds of prey. One of our Nottingham hotel keepers, Mr. W. W. Duckmanton, tells me that his boyhood was spent on a farm in the neighbourhood of Potter Hanworth, a few miles south of Lincoln. At that time, say some forty or forty-five years ago, an almost unbroken stretch of woodland extended from Potter Hanworth to Blankney. Game was not preserved in the strictest meaning of the term, and birds of prey were abundant. Mr Duckmanton tells me that one large and conspicuous species which he calls 'Pueleads' was very common. He says that they had a habit of sailing round in grand circles overhead and then suddenly swooping down on some unfortunate farm-yard chicken. He often climbed up to their nests—large structures of sticks, generally high up some tree—and took the young. He reared many of them, feeding them on rats, mice, and sparrows. I suppose these birds would be Kites (*Milvus iclinus*). He describes them as very handsome and of a dark plumage. Sparrow Hawks (*Accipiter nisus*) and Jays (*Garrulus glandarius*) were abundant too. Mr. Duckmanton informs me that he trained a pair of the former species to take live sparrows which were thrown up for them.—F. B. WHITLOCK, Beeston, Sep. 13th, 1895.

Muscicapa atricapilla in Lakeland.—This beautiful bird, whose increase of late years has been noticed in several quarters, now seems to have gained firm footing in Lakeland. In previous years I have known it in two different areas of drainage (one in Lancashire and the other in Cumberland), and this year I have met with it in a third area (Westmorland), where it appeared so numerously established that, with limited opportunities of locomotion, I counted as many as seven singing males stationed about, in May. Whether all remained to nest successfully I do not know. I saw four of them, however, enter nesting-holes; and the fortunes of two nests I followed till the time of the nestlings' flight. The site was an almost purely woodland one, and the nests were in those pocket-like holes in the trunks of old oak trees which appear to be caused by the shrinkage of the base of a long lopped-off limb. One hole was not more than eight feet from the ground, the other was near twenty. The oaks were within a hundred paces of each other, and the male birds sang at close quarters without discord or excitement. Only once, when one trespassed right into the home-oak of the other, and when, too, the hen was off her eggs, was there jealousy and anger. The song of each male ceased at what seemed to be the date of the hatching of the young. It was surprising to note how circumscribed was the feeding area of each pair, for they might readily be watched as they busily took food into the nest through late May and early June days. The two broods flew—one shortly before, and the other shortly after, the 15th of June. The earlier pair of old birds immediately showed signs of re-marriage, but whether they nested again or not I do not know; they did not use the old site.—MARY L. ARMITT, September 23rd, 1895.

Naturalist,

FURTHER DISCOVERIES OF ARENARIA GOTHICA.

LISTER ROTHERAY,

Skipton.

PRIOR to the autumn of 1894, the only recorded localities for the existence of *Arenaria gothica* Fries in Britain consisted of the one at Ribbleshead—its first discovered habitat—and one near to Selside, discovered by Dr. and Miss Thompson in August 1890.

In March of the present year, however, Mr. Whitwell, F.L.S., informed me by letter of the discovery by Mr. Reginald J. Farrer, of Ingleborough Hall, Clapham, of another locality in September 1894. At first some doubt was expressed as to whether this was not simply an unconscious rediscovery of the Thompson station, but after some correspondence on the subject had passed between Mr. Whitwell and Mr. Farrer, it was clearly shown that the locality in question was at the head of Sulber Nick, and quite a new discovery, and that it ought rather to have been given as consisting of two stations, a mile apart, instead of only one as announced. The first of these stations was said to be situated 'as the crow flies' about a mile southwards of Dr. Thompson's locality near to Selside, the second one being a mile still further south, and near the entrance to Clapham Bottoms.

In my reply to Mr. Whitwell, thanking him for the information and for the particulars given of the two localities, I notified him of my intention, at the earliest opportunity, of going to investigate the district for myself, informing him at the same time that I should pay particular attention to an exploration of both of Mr. Farrer's stations, as well as devote some time to the investigation of the adjacent neighbourhood, promising on the completion of the journey to give him full details of the results and conclusions arrived at. Early in April, Mr. Whitwell again wrote inviting me to make a special search and survey of the Sulber Nick locality, and at the same time suggested a full and careful exploration of the whole of the Nick itself, but until August 13th last, from a combination of causes, the opportunity for carrying out my own intention and his special request never offered.

Accordingly on that day I journeyed to Horton-in-Ribblesdale Station, this being the best and nearest place from which to reach Sulber Nick, the starting-point whence I proposed to commence my explorations.

As, however, this part of the district was to me an unknown one, my first efforts, on reaching the precincts of the Nick, were directed to searching for the spot at its head, or western end, where the cart-track was said to cross it; but although I carefully scanned every possible means of entrance in that direction, not one could be found whereby a horse and cart could ever reach the bottom of the depression, this being at least some 60 or 70 feet below the level of the adjoining pasture at its north and western sides. Moreover, in addition to the steep and rugged sides, the western end of the Nick was encircled by a high stone wall which ran all along the top of the highest terrace and partly along the north side, in the former of which could be seen a small wicket-gate, evidently the only means of exit or egress in that direction. As the best way out of the difficulty, a move was made towards the opposite or south-western corner, this being the only place, save the one by which entrance had been made, where a means of exit from the hollow was to be had. To have gone back would have been a failure of the objects intended by the journey.

Happily this course proved the means of salvation, for before long a farmhouse was observed in the distance, at which, upon enquiry for the said cart-track, the best way to reach it was pointed out. Instead, however, of following the cart-track, which wound round a large hill to the left, as directed, a short cut along the higher terraces bounding the western side of the head of Crummack Dale was taken, and after twice climbing the wall which separated the open moorland from the head of Crummack Dale and Sulber Nick, the cart-track was at last found at a point where both it and the wall for nearly 500 yards ran almost parallel with each other, the latter terminating at its junction just beyond the wicket-gate already mentioned, with another wall dividing Sulber pasture from the open moor. Immediately on gaining the track, which from this point ran southwards right across the open moor towards Clapham Bottoms and Crummack Dale, a diligent search along it in the opposite direction towards Selside was commenced, the track itself as well as the ground on each side of it, being slowly and carefully examined. After going a short distance, signs of the *Arenaria* in single plants here and there began to appear, the plants increasing in number at short intervals as the track approached near the head of the Nick. This I concluded must be the spot indicated to me as that discovered in September 1894, by Mr. Farrer. There was, however, this difference in regard to position, that whereas his locality was described as 'the track crossing the upper end of Sulber Nick,' the track in this case was entirely on the open moor and

quite outside the limits of the Nick, the wall being an effectual barrier which divided the one from the other. During all the length of the track before indicated, the *Arenaria* appeared sparingly and *not* 'in abundance,' on both the track and sides, until before arriving at the gate leading into Sulber pasture, it entirely disappeared within a few yards of it.

By the time this spot was examined, it was past noon, so that if anything more in the way of investigating other portions of the track or the vicinity was to be done, it would be utterly impossible for me to return a mile on the back track in order to examine Mr. Farrer's second station at the entrance to Clapham Bottoms.

From the head of Sulber Nick the cart-track, by a somewhat winding route, leads on to Selside, and this portion, therefore, I decided to explore; so, quitting Mr. Farrer's Station 1, I passed through the gateway into Sulber pasture. Hitherto the track had been single, but after proceeding a short distance beyond the gateway, it suddenly divided into two branches, one turning diagonally to the left, whilst the other (a continuation of the single one) kept on in a direct but downward course along the level of the pasture, closely hugging the base of a small flat terrace some 10 or 12 feet in elevation, up and along which, a short distance after division, the left-hand track ascended and ran.

For some 30 yards or so, after leaving the gate, no sign of the *Arenaria* was seen, but by-and-by single plants began to make their appearance upon the track, sometimes between the cart-wheel ruts, at others close on the outside of each, but never in a continuous line, the number varying with the formation and composition of the ground. In this manner the division of the two tracks was reached, the ground having changed within the distance from a grassy nature to one of broken stones intermixed with scant soil, and then from that to patches of bare limestone overgrown in places with moss and soil, the two latter being the most fruitful in specimens of the *Arenaria*.

On arriving at the point of division, the left-hand portion of the track was the one first followed and examined. Like the other single one, this mostly resembled that portion outside of the head of Sulber Nick, being more stony at the commencement of its ascent of the ridge, and here the *Arenaria* began again to be visible, growing in amongst the small stones that here and there stood in patches between and along each side of the wheel marks. In these places sometimes a single plant was found, and sometimes two or three were noted close together, but it was very rarely, and at long intervals in distance, that a larger number was discovered. Its

occurrence in such sparse numbers so far pointed to its not being at all abundant in this part of the track; so after proceeding a short distance further a return was made to the point of division in order to explore the right-hand portion of the track, together with the space of ground lying between them.

Here the conditions of moisture and composition of surface formation varied very much from that of the other track, for whilst the latter was comparatively dry and stony, this one, as well as the intervening space, was very wet, the ground in many places being completely soaked by the streams of water that gushed from the base and sides of the ridge along which the left portion of the track was continued. As in the other track, so also here, the *Arenaria* was discovered in but scanty numbers, the ground generally being too wet and unsuitable for it.

After a most thorough examination of the place, the right-hand track was further continued along the pasture, but as no signs of the *Arenaria* appeared upon the grassy surface so far as it was followed, further search upon it was abandoned, a renewed examination being given to the higher and left-hand one, at the point where it was previously left. From here the track was followed to where it was joined by the lower one from the pasture level, and thence forward to the gateway leading into the next pasture, the *Arenaria* still appearing here and there along the track as before. A short distance, however, before reaching the gate it vanished, but reappeared on the other side of the gate in the next pasture, and still continued to do so, while the track remained upon the ledge, on which it had so long kept its course. After leaving here the track joined again the level pasture, when the *Arenaria* finally disappeared on this track, but as suddenly reappeared in the next pasture on quite a different track, which ran almost at right angles to the one that had last been followed. In this third pasture, as in the other two, the track after a short course of some twenty to thirty yards over a grassy surface, suddenly changed to a stony one, and here for about fifty yards the plants of *Arenaria* appeared sparingly upon it, some of them being the finest I had seen during the whole day.

Thus, the three stations in the three pastures above quoted, viz., Sulber, the next to it, and Borrins, constitute the three places in which I claim to have made further discoveries of *Arenaria gothica*, these being additions to those already known.

With respect to the companion vegetation, this was characteristic of all the other stations I had seen, except that here *Euphrasia officinalis* was the most common plant. Along with it were *Gentiana amarella*, *Sagina nodosa*, *Arenaria verna*, *Linum catharticum*,

Cerastium vulgatum, and dwarfed specimens of *Plantago major*, the latter being mostly noted at the head of Sulber Nick.

In point of elevation the three stations vary very little. If we take the Sulber Nick station as a standard of computation, this being given as 1,175 feet, the Borrins pasture station may be estimated at about 1,100 feet, whilst Sulber pasture and the adjoining station would be about 1,150.

Since writing the above a second visit has been paid to the Sulber Nick locality, and further discoveries of *A. gothica* have been made, particulars of which will follow in another paper.

NOTES—BOTANY.

Andromeda polifolia at Newton Moss near Penrith.—Whilst hunting for spiders at Newton Moss, near Penrith, on October 5th, I found a fair quantity of *Andromeda polifolia* in full flower; this is a new locality for this plant.—J. CHARLES SMITH, Nandana, Penrith, 9th Oct., 1895.

Gentiana pneumonanthe and Verbena officinalis in North-East Yorkshire.—On August 31st I found *Gentiana pneumonanthe* growing in a scattered patch on the moors to the west of Keldy Castle, about five miles north-west of Pickering; and at the same time we saw *Verbena officinalis* growing freely by the road-sides in the village of Cropton.—REGINALD H. BARKER, Grosvenor Bank, Scarborough, Sep. 6th, 1895.

Re-Discovery of Malaxis paludosa in North-West Yorkshire.—Last Wednesday (September 11th) I exhibited to the York and District Field Naturalists' Society two specimens of *Malaxis paludosa* that I gathered from the Yorkshire side of the Upper Tees on August 26th. I believe this is a good find for Yorkshire.—WM. INGHAM, B.A., 47, Haxby Rd., York, Sep. 17th, 1895.

[In 'North Yorkshire' a locality is given on the Yorkshire side of the Tees, but I never could find it there.—J.G.B.]

Brassica muralis in Upper Wharfedale.—This plant has appeared for the first time in Upper Wharfedale in my garden at Arncliffe, 750 feet above the sea-level. The plants were found in a bed of stocks. Mr. F. Arnold Lees mentions it as having been found at Goole (in the 'Flora of West Yorkshire') and adds 'Casual, hardly colonising, on waste ground, very rare.' In a subsequent note he remarks, 'it belongs to that class of colonists, originally aliens, which bids fair to be as ubiquitous in twenty years by roadsides and in made ground as *Bursa Pastoris*.' Accordingly, botanists may expect to find it as common in the north of England in a few years as it is in the south.—W. A. SHUFFREY, Rectory, Arncliffe, Skipton, October 22nd, 1895.

Sparganium neglectum in North East Yorkshire.—The discovery of this plant by Scalby Beck, near Scarborough, in about lat. 54° 20', considerably extends its northward range in Britain. Some time ago (Journ. of Bot., 1890, p. 236) I ventured to suggest that its occurrence in one place in Denmark, in about the same latitude as Berwick-on-Tweed, made it possible that it might extend, as a rare plant, as far north as the south of Scotland; but with the sole exception of the locality recorded above, I have seen no examples from any vice-county north of lat. 53°, the limits being Merioneth, Stafford, Hunts, and Norfolk East. I am indebted to Mr. Arthur Bennett for specimens from the Scalby Beck, where it was found last September by Mr. I. H. Burkill, who reports it as being abundant on the mud of a waterless pond about a quarter of a mile from the sea.—W. H. BEEBY, Vaila, Burwood Park, Walton-on-Thames, Oct. 2nd, 1895.

NOTE—ORNITHOLOGY.

Great Skua at Scarborough.—In reply to Mr. Wm. J. Clarke's note in the September 'Naturalist,' there is no doubt about the bird being a Great Skua (*Stercorarius catarractes*); it was at Mr. Howard Saunders' request that I recorded it. I believe the bird may still be seen at Mr. Pickin's, Bridge Street, Manchester, where I saw it in the flesh.—JOHNSON WILKINSON, M.B.O.U., St. George's Square, Huddersfield, Sep. 1st, 1895.

NOTES AND NEWS.

The Toynbee Natural History Society, from the Toynbee Hall, London, spent a fortnight at the beginning of August under tents in Upper Teesdale, and an account is given in 'The Toynbee Record' of October, pp. 7-9. The scientific results do not seem to have been very great, but the expedition was a most enjoyable (and much enjoyed) one.

'Geography' is the brief title of the periodical in which the Manchester Geographical Society now records its doings—replacing the 'Proceedings' formerly issued. No. 1 of 'Geography' is dated 30th September. Its contents are somewhat disappointing, consisting merely of a syllabus of the Society's winter session, a children's page, etc.

From Mr. Percy H. Grimshaw, F.E.S., we have received his remarkably interesting paper, reprinted from the Annals of Scottish Natural History for July last,—'On the Occurrence in Ross-shire of *Cephenomyia rufibarbis*, a new British Bot-fly parasitic on the Red Deer'—a detailed account of the life-history as observed by German and Austrian naturalists being added to the record of the occurrence.

The occurrence of an Albatross (*Diomedea melanophrys*) in the Færøe Islands, where it is stated to have lived with the Gannets on Myggenaes Holm for upwards of thirty years, is the subject of a paper by Knud Andersen in the Proceedings of the Royal Physical Society of Edinburgh, vol. 13, which lies before us. A couple of excellent process-plates, one representing the bird itself after it was killed and set up, and the other the Stacks of Myggenaes, which were its haunt, the latter from one of Mr. Norrie's exquisite photographs.

Among the smaller works on our table is one of which the title-page—'The | Missing Link.' | — | Consul, | the Remarkable Chimpanzee. | Lately Resident at Belle Vue Zoological | Gardens, Manchester. | — | By Frank Roper. | — | Manchester : | Abel Heywood & Son, 56 and 58, Oldham Street'—is sufficient to show the nature of its contents. It may, however, be added that the price is 6d., and that the brochure has the bad fault of not being dated. The illustrations are four very good process-portraits of the curious animal, and one of his keeper, and the narrative is an interesting record of what may be done in the careful training of an imperfect intelligence.

It is a long time since we have seen any of the publications of the Nottingham Naturalists' Society. We therefore welcome the appearance of their Annual Report and Transactions for 1894, which includes three papers, all of them (we are pleased to note) local in their scope and practical and useful in their character. Mr. A. T. Metcalfe, F.G.S., describes 'The Gypsum Deposits of Nottinghamshire and Derbyshire,' Mr. J. Shipman 'The Coal Measures of the Leen Valley,' and Mr. H. Fisher gives what is called 'A Summary of the Flora of Notts,' but really includes only the additions made to the county list by Mr. Fisher, the paper itself having already appeared in Prof. Carr's useful 'Contributions to the Natural History of Nottinghamshire.' The report also includes memoirs of three members deceased, with portraits of two of them.

MASSEE'S FUNGUS FLORA.

British Fungus Flora. | A Classified Text-Book of Mycology. | By GEORGE MASSEE, | Author of 'Plant-life,' 'The Plant World,' &c. Vol. IV. | London : George Bell & Sons, York St., Covent Garden, and New York. 1895.

THE student of mycology never before was in such a happy position, so far as the British literature of the subject is concerned, and Mr. Massee is again to be congratulated on producing a work that cannot fail to be of the highest value to the working mycologist. Ten years ago it was no easy task to determine fungi, especially microscopical species, which was chiefly due to the fact that the British literature was so meagre and the descriptions so vague. Of course at that time one had to be content with such works as 'Berkeley's Outlines' and 'Cooke's Handbook'—both of which served a useful purpose—but of late years a rapid advance has been made in the study of fungi, which is evidenced by the several volumes of this important work.

The present volume is devoted to three families of the order Ascomycetes, viz., Gymnoascaceæ, Hysteriaceæ, and Discomycetes, and it is a pleasure to open a book containing such a large amount of original work. To the ordinary botanist who is desirous of taking up a fresh line of study, this volume is well worth his attention. The subject is a fascinating one, and a wide field is open for investigation and research. Few persons have any idea of the beauty and interest attached to these small fungi, the Discomycetes in particular, many species of which can easily be found at all seasons of the year.

The introduction to this volume extends to nine pages, in a well-written and interesting description of Ascomycetous fungi, in which the various scientific terms used throughout the work are clearly explained, and it also shows how and where to collect specimens, besides giving some useful hints on the examination of species. Then follow the descriptions of the various species that come under the small families Gymnoascaceæ and Hysteriaceæ. The rest of the volume—about 450 pages—is devoted to Discomycetes, commencing with the lowest forms. Hitherto the only work of importance on British Discomycetes was the excellent manual of Mr. W. Phillips (1887), which is brought thoroughly up to date in this volume. More than this, Mr. Massee has completely overhauled the Discomycetes, and no one in this country was more competent for the task, or had more favourable opportunities for carrying out the work. The undertaking has doubtless been an enormous one, and this much can be said, that it has been done conscientiously. Mr. Massee has examined types of most of the species, and in many cases has practically re-written the descriptions. A noticeable

feature is that the structure of the excipulum is included in the descriptions of many species, and no doubt in closely allied forms this innovation will prove of value. In working with Phillips' manual the student became quite familiar with sub-genera, but Mr. Massee believes in elevation, and not a single sub-genus is to be found in the volume. In place thereof are a large number of genera, nearly doubling in fact those given by Phillips. Each genus is illustrated by small well-executed figures, which are rather too crowded together, want of space probably being the consideration. However, the faults of the work are few, and Mr. Massee has rendered a great service to British mycologists by the publication of the most complete work of the kind that has yet appeared in the English language.—H. T. S.

NOTE—LICHENS.

Umbilicaria pustulata near Keswick.—Mr. J. Charles Smith of Nandana, near Penrith, recently sent me for identification through the Editor of this Journal, a lichen which he gathered from a dry exposed rock on the summit of Falcon Crag, near Keswick. He does not remember having seen it before in this district. It is *Umbilicaria pustulata* Hoffm., and its occurrence on Falcon Crag, Keswick, is well worth noting. The plant is somewhat local in its distribution, but is generally abundant in such places as it occurs. I know four stations for it in Westmorland, though up to the present time, as far as I am aware, it has only been recorded from one locality in Cumberland, namely, the Strands, Wastdale; its occurrence there being noted by Leighton in his 'Lichen Flora,' and by Johnson in his 'Lichens of Cumberland.' Doubtless it will be found in other parts of both counties.—JOSEPH A. MARTINDALE, Staveley, Kendal, Oct. 11th, 1895.

NOTES—MAMMALIA.

Daubenton's Bat in Cheshire.—As but little is known of the distribution of even our commonest Bats, it may be deemed advisable to record another Cheshire locality for *Vespertilio daubentonii*. On August 15th last, during a smart shower, I watched one for some time as it flitted to and fro over one of the reservoirs at the print-works in Chadkirk Vale, near Romiley. On the 19th and 28th I saw one, presumably the same, and on the 20th two Bats, at the same place. This species is, so far as my limited experience of it goes, a gregarious one, and the occurrence of one, or at most two, individuals is, perhaps, note worthy.—CHAS. OLDHAM, Romiley, Oct. 14th, 1895.

Hedgehogs in the Lake District—(ante, p. 242).—These animals are by no means scarce, to my knowledge, in Cumberland and North Lancashire. In the latter county (and, no doubt, the former), the old scandal that they suck the cows during the night is repeated by almost every small farmer, and the creatures are killed when possible. With opinion and dogs against them, still there are plenty left for the gipsies and tramps to roast, like potatoes, in their jackets, and the idle tripper to tease, if he does not take the captive home. For there is an idea held by some folks that they catch black-beetles! I know an old lady who kept one, and was delighted to find it drink milk from a saucer and eat lettuce as a change from beetles; and some folks use them as slug-catchers. I have seen a pouch—use unknown—made of the skin, spines of course outside, but this was in Yorkshire. They were very destructive in a garden outside Ulverston, as I found to my cost. But see Macpherson's 'Fauna of Lakeland,' 1894, p. 4.—S. LISTER PETTY, Ulverston, 16th August, 1895.

SUPPOSED OCCURRENCES OF THE SPOTTED SANDPIPER IN YORKSHIRE.

JOHN HENRY GURNEY, F.Z.S., M.B.O.U.,
Keswick Hall, Norwich.

AT p. 327 of 'The Naturalist,' Lieut.-Col. B. B. Haworth-Booth records a Spotted Sandpiper (*Tringoides macularius*) shot at Rowlstone, in Holderness, by one of his sons. From a private communication I learn that the specimen was identified from the drawing in Bewick's 'British Birds,' which it exactly resembles. Now, this drawing seems to have been the cause of misapprehension several times, representing, as it evidently does, the common British species, *Totanus hypoleucus* (L.), and not the American one. When the 1847 edition of Bewick was in the press, the late Mr. John Hancock tried to get the matter put right, but Bewick's relatives were timid, and would only allow the following note to be added:— 'This bird is believed by some to be the Common Sandpiper.' As likely as not, Bewick's wrongly-named woodcut was used for identifying another Spotted Sandpiper, entered as such in 'The Naturalist,' 1878-9, p. 80, as having been shot near Heslington, on the authority of Mr. Helstrip, and exhibited at the York Naturalists' Society's meeting as a veritable American visitor; some correspondent may have seen the bird and remember its identity.

It has indeed been suggested that Bewick's woodcut may possibly represent the young of the American *T. macularius*, which is without spots, but the markings on the back show that Bewick's cut is from an adult, in which stage the breast is spotted. This, I think, forbids the supposition that it could have been anything but an English *T. hypoleucus* (shot, as I learnt from Mr. Hancock, by Mr. John Wingate near Bellingham). As this was ninety years ago it has probably by this time passed out of existence, but, from what Mr. Hancock and Mr. R. Howse tell me, it most likely at one time was to have been found in Colonel Coulson's collection at Blenkinsop Hall, near Haltwhistle, dispersed by auction many years since, which collection also contained a Great Bustard, locally shot.

There are thirty-one supposed occurrences of the Spotted Sandpiper in the British Isles, and there are very few birds around which so much misapprehension has clustered. A good many of them are undoubtedly cases of mistaken identity, while some are foreign skins wilfully or unintentionally palmed off as British-killed, and admitted into collections where they would otherwise not have found a place. *Totanus macularius* was allowed to retain its place as a British bird in the 4th ed. of 'Yarrell' by Mr. Howard Saunders,
Nov. 1895.

but consigned to the comparative oblivion of a note in 'The Manual' (1889), 'until some trustworthy person can produce a specimen'—a very proper exercise of caution. There is no reason why it should not sometimes cross the Atlantic as other American Sandpipers do, and as it has no spots its first autumn it would not be easily recognised if a bird of the year, except by the browner colour of its secondary quills. *Tringa maculata*, the Pectoral Sandpiper, which has been shot more often in the British isles than any other American member of the family, has generally turned up in immature plumage. Of the eight Norfolk-billed Pectoral Sandpipers seven have been young ones.

At the same time it is worth pointing out that Mr. William Brewster considers that the Spotted Sandpiper 'is conspicuous among [American] Scolopacidæ for its comparatively feeble, restricted powers of flight,' not that this quality acts as any deterrent in the case of Porphyrios Crakes and Moorhens, which fly over the sea with the greatest ease.

NOTES—ORNITHOLOGY.

Shoveller at Skipwith.—It may be worth recording that we shot a female Shoveller Duck (*Spatula clypeata*) here on the 5th. The bird was a young one. There was a second at the same place, which got away.—C. D. ASH, Skipwith Vicarage, Selby, Sep. 16th, 1895.

Flamborough Bird-Notes.—Large quantities of Terns or Sea Swallows have been seen along our coast this season, both Common and Arctic (*Sterna fluviatilis* and *S. macrura*); also several Sandwich Terns (*S. cantiaea*), and amongst them the Black Tern (*Hydrochelidon nigra*). I saw three Black Terns that had been shot here the other day—two immature, the other one a last year's bird. Numbers of Skuas have also made their appearance, which give chase to the Sea Swallows and Kittiwakes (*Rissa tridactyla*) when feeding, to their great annoyance.—MATTHEW BAILEY, Flamborough, Sep. 16th, 1895.

Flamborough Bird-notes.—Arrivals of Autumnal Immigrants.—The first I have seen of autumnal arrivals were Hooded Crows (*Corvus cornix*), on 27th September, a very early date. This made me fully expect some rough weather to follow, and it came shortly after, and brought several birds: the Great Shrike (*Lanius excubitor*), immense flocks of Larks (*Alauda arvensis*), Starlings (*Sturnus vulgaris*), Blackbirds (*Turdus merula*), Thrushes (*T. musicus*), and Crested Wrens (*Regulus cristatus*). This week the weather has been very boisterous, and with it a fog that caused birds to cling about the lighthouse like a swarm of bees; in fact the rocket-house keeper informs me of a bird flying against the light of the rocket signal station with such force that when picked up it was dead. He also said that Woodcocks (*Scolopax rusticola*), had arrived on the Headland. As to sea birds, immense quantities of Gannets (*Sula bassana*), had arrived at the south of the Headland, also several Shearwaters (*Puffinus sp.*), Skuas (*Stercorarius sp.*), also two Sabine's Gulls (*Xema sabinii*), Kittiwakes (*Rissa tridactyla*), and Herring Gulls (*Larus argentatus*). On October 1st, I had brought in two Sooty Shearwaters (*Puffinus griseus*), which had been shot; they were male and female, and very fine specimens. While writing, the storm is raging. Yesterday morning, when one of our herring boats was returning from the fishing ground, a Storm Petrel (*Procellaria pelagica*) flew on board in quite an exhausted condition. The fishermen say that they could hear during the night swarms of birds coming in from the sea making for the Headland.—MATTHEW BAILEY, Flamborough, Oct. 16th, 1895.

LINCOLNSHIRE NATURALISTS AT SLEAFORD.

REV. E. ADRIAN WOODRUFFE-PEACOCK,

*Vicar of Cadney; General and Botanical Secretary, Lincolnshire Naturalists' Union;
Curator of the Lincolnshire County Herbarium.*

THE seventh meeting of the Lincolnshire Naturalists' Union was held at Sleaford, South Lincolnshire, in the centre of Natural History Division 14, on Bank Holiday, August the 5th. A more unfortunate date could hardly have been fixed on. Many members were away from home, the weather had been unsettled for three weeks before, and the trains from all quarters were unusually late. A fair muster of old workers turned up during the course of the day; and as they were able to arrive three parties started from the town. The first and third followed the course of the Sleawest through the parishes of New Sleaford, Holdingham, South Rauceby, and home by Quarrington; the other party went east through Evedon. Everyone was pleased to welcome Mr. J. Larder, of Louth, again in the field as an active worker.

The following is a summary of the reports of the sections that were represented.

Mr. F. M. Burton, F.L.S., F.G.S., writes:—The geology round Sleaford is of a highly interesting and attractive character, having exposures of various sections of the lower, middle, and upper oolites, which can be easily examined on the surface. The town itself is built partly on cornbrash—the uppermost series of the lower oolite—and part (the centre) on alluvial gravels; while the Oxford clay of the middle oolite crops out on the east. With all these facilities the wonder is that the study of geology is not followed by many of those who live in the town and its vicinity. Leaving the railway station and passing the site of the old castle, the foundations of which only remain, and which stands on alluvial soil, we reached the River Sleawest, and followed its left bank westwards to South Rauceby. Then after keeping on the gravel-beds for about two miles, we came to a disused stone-pit in the Lincolnshire limestone at Bullywells, or Boilingwells, a source of the Sleawest. The rocks here appeared very free from fossils, and those we saw were mere broken fragments. On the rocks, however, recent species of molluscs, such as *Helix virgata* and *H. caperata*, were plentiful. To the north of this pit is a narrow band of the upper estuarine clays of the great oolite; and about half a mile further to the west we reached

another disused pit in the Lincolnshire limestone at South Rauceby. Then, retracing our steps to Bullywells, we crossed the Slea and examined another pit called 'Greylees,' in an outlier of the same formation. In this pit the rubble at the top of the oolite is much broken up and contorted, dipping in every direction, and curved and folded in an extraordinary manner. The rocks, however, underlying this rubble, are undisturbed, except on the south side, where there are signs of an uplift. This may be connected with the uplift in the gap through the oolite cliff at Ancaster, which lies a few miles off on the west, where the Witham once flowed; and the disturbance of the rubble may be due to this cause. There is, however, in the same field, but at a higher level than this outlier, a bed of sand and gravel, which has been partly excavated, and which shows signs of strong river action; patches of gravel being intercalated with the sand, giving the whole a semi-stratified appearance; and this again may account for the breaking up and disruption of the rubble. The matter is well worthy of careful and more prolonged study than we were able to give to it. After leaving these pits we crossed the line to Grantham, which lies on river gravels, and going over a narrow band of the great oolite limestone, and another still narrower band of the great oolite clays beyond it, we got on the Cornbrash; and after a look at the beautiful church at Quarrington, we continued on this formation till we reached Sleaford, after a very pleasant walk.

Most of the Union's best botanists were present, and the ground was carefully worked as the parties moved along. A summary of the joint list is here given, and in interesting cases the distribution added from the Locality Register. *Ranunculus circinatus* Sibth., *R. drouetii* Godr., *Arabis sagittata* DC., *Lepidium sativum* L., *Raphanus raphanistrum* L., *Silene noctiflora* L., *Lotus tenuis* Waldst. et Kit., in Quarrington parish on the embankment at the east end of the northern platform, Rauceby Station, along with *Erigeron acre* L. *Carum segetum* Benth.—this species is thinly distributed in the county, but I have seen specimens from or in all divisions except 1, 2, 4, 15, 16, and 18. *Sison Amomum* L., *Asperula cynanchica* L., was taken at Rauceby, and now is known in 2, 13 (7), 14, and 15. *Carlina vulgaris* L. Both the *Picris*, *Samolus*, and *Symphytum officinale*. *Cuscuta epithymum* Murr. has only once been taken before. *Limaria spuria* Mill. is thinly, if more widely distributed than one would imagine—6, 7, 8, 14 (2), 15 (2), and 16 (3). *Calamintha arvensis* L. *Salvia verticillata* L., a lovely alien, with whorls of 20 to 30 purple flowers, was found by the side of the railway east of Ancaster station. *Galeopsis angustifolia* Ehrh., and

G. tetrahit L., type, also its *flore albo* form, and *G. bifida* Boenn., variety. *Herniaria glabra* L. was found in two places in Quarrington parish. It was first recorded by Rev. George Crabbe in 'The Botanist's Guide,' 1805. Verified by Dr. R. Latham, of dictionary fame, in 1838, who sent specimens to the late Prof. Babington. Its range is very limited, being confined apparently to the parishes of Quarrington, South Rauceby, and Wilsford in 14; and Ancaster, with the hamlet of West Willoughby, the next parish, just over the Division border, in 15. Both the type and variety *subciliata* Bab. are in the 'County Herbarium'; but Prof. Babington wrote to me a year ago to say it was his intention to remove the varietal name from the ninth edition of his 'Flora.' Under date August 29th, 1894, Miss S. C. Stow, of Court Leys, Brandon, Grantham, wrote to me as follows:—'On the 27th, while looking for *Gentiana campestris* L., we found *H. glabra* L. growing in a rather thin seed field. The ground for about an acre and a half was green with it; and we easily saw it, for the specimens were very large and fine, as you will see from those enclosed. It was a truly wonderful sight, which we shall probably never see again. The ground must be full of seed; and if it can stand the four course system of cultivation, it must like its habitat, and will not die out, I imagine.' The limited range of the species with us, and the fact that it appears steadily to be spreading from this one centre, and also the fact that *H. hirsuta* L. has been introduced into the county with foreign barley, suggests most forcibly that we have in *H. glabra* an old alien which has found a congenial settlement rather than a true native. One curious *Carex* was taken, which Messrs. W. Fowler and F. A. Lees will not undertake authoritatively to name. It has yet to be submitted to Mr. A. Bennett. From a marked 'London Catalogue' I find that 264 species were recorded.

Mr. J. Larder reports:—The gathering of *Algae* I took from the river Slea, on which Mr. T. Spence-Smithson, of Rochdale, has kindly reported, consisted of *Mesocarpus pleurocarpus*, not, however, typical. Also two species of *Spirogyra*, *tenuissima* and *flavescens*. The first of the three is a first record for the county. Mr. R. W. Goulding reported the Wall Butterfly—*Hipparchia megaira*—in unusual numbers.

A small but hearty party of workers gathered together at the Bristol Arms Hotel for high-tea at four o'clock, and an after-talk on natural history subjects, botany predominating from the number of workers interested in that subject. Every one was in good spirits, and the members present unanimously passed a vote of thanks to Colonel M. W. Willson, C.B., J.P., for generously opening his estate for their inspection.

BRITISH LEPIDOPTERA.

The | Lepidoptera | of the | British Islands | A Descriptive Account of the Families, Genera, and | Species Indigenous to Great Britain and | Ireland, their Preparatory States, | Habits, and Localities | By Charles G. Barrett, F.E.S. | . . . | Vol. II. | Heterocera, | Sphinges, Bombyces | London | L. Reeve and Co. | . . | . . | 1895. [8vo. cloth, 372 pages].

THERE is but little to add to what we had the opportunity of saying in our review of the first volume. The present one is quite equal to it in every respect, dealing with a similar attractive series of conspicuous and handsome species, the life-histories of which are of very considerable interest. The account of each species is full and well-rounded, the only omission of serious consequence being the absence of synonymy, of which it would perhaps have been desirable to give so much as would show the dates of the earliest names, as well as the appellations used in the various English and one or two of the leading foreign works on Lepidoptera. The book is handsomely and attractively got up, and quite worthy of the reputation achieved by its publishers.

NOTES AND NEWS.

Special numbers of two of our contemporaries were published some time ago which merely pressure of time and space prevented our noticing long ere this. The April number of 'The Practical Photographer,' which is published at Bradford by Percy Lund and Co., was a double number, devoted to Animal Studies. It included a large number of



excellent photographs of animals and birds, mostly of domestic and caged species. We reproduce one, the only one of local bearing and the only one that can be regarded as other than 'still life.' It represents a gull with a morsel of food in its beak, and was taken at Douglas, Isle of Man. In the dim future it would be of great interest to have a

similar series of animal studies in action, more especially of wild creatures. Could not some of our photographers set themselves the task of systematically taking shots at our native animals and birds in their haunts?

The other special number is that of 'Natural Science' for July, in which the story of the Challenger Expedition and its publications is told in a series of short articles by the authors of the various memoirs themselves—a most interesting number.

A most excellent piece of bibliographical work lies before us in Mr. W. E. Hoyle's Catalogue of the Library of the Manchester Museum. The books and pamphlets which that library contains are here classified and arranged on a thoroughly scientific plan, the 'decimal system' of Prof. Melvill Dewey, which is the only system yet promulgated whereby additions to a library can be incorporated in their proper place without the necessity of altering the numbers allotted to the various books. The importance of pamphlets—so often overlooked—is fully recognized by Mr. Hoyle, whose work is singularly free from the 'faults and errors' to which he alludes in the introduction, and we have not often seen a better piece of work of its kind.

LINCOLNSHIRE AGRICULTURE

ONE HUNDRED YEARS AGO.

JOHN CORDEAUX, M.B.O.U

Great Cotes, R.S.O., Lincoln.

CONSIDERING the present position of the County of Lincoln as an agricultural district, it is much to be regretted that so little information has come down to these days from the direct testimony of eye-witnesses in connection with its ancient physical characteristics before those enormous advances were made in the science of agriculture at the commencement of the present century, which swept away, once and for ever, the original features of the land, and with these the beasts and birds, the insects and wild flowers, which flourished, free and without restraint, on its vast heaths and commons, boundless fen lands and marshes.

In 1798, the Board of Agriculture undertook the task of sending down a Commissioner, who was then Secretary to the Board, to report on the position of Agriculture throughout the county, and the proceedings of this survey were published in 1799. The Commissioner was Arthur Young, one of the fathers of English agriculture—a man greatly in advance of his day, and of much culture and experience.

As might be expected, the report, which is extremely practical and exhaustive, deals almost exclusively with the actual position of husbandry in those districts visited. The Commissioner had no eyes for anything beyond the special information he sought; fortunately, however, in the voluminous mass of facts and statistics put on record, we find here and there a few words, sometimes a whole paragraph which helps to bring forcibly before us those natural features of the county as then existing—a century ago.

The information in the report is scattered, and has to be collected, here a bit and there a bit. There is no proper index, and the original proofs have evidently been allowed to remain uncorrected, for each page bristles with inaccuracies and misspelling of names of men and places, and of local and provincial terms.

In making this survey, Arthur Young had the advantage of having professionally visited the county thirty years previously, and during this interval great advances had already been made in the enclosure of open lands, the clearing of gorse from the hills, and the cultivation of the turnip. Without now going into the subject,

there can be no doubt that the common turnip had been grown as a field crop—sown broadcast—both in Norfolk and some other parts of England long before it was introduced into Lincolnshire. In 1798, however, the Swede turnip had been scarcely tried, and its special cultivation was neither understood or indeed looked upon with much favour by the few who had made experiments in that direction.

The great wastes, north and south of Lincoln, had been partly enclosed, and land, once covered with heaths and heather and patches of the lovely blue gentian, converted during the last quarter of the eighteenth century into profitable arable farms, then letting as high as 10s. an acre. Only a few years previously these heaths extended from the south of the county, by Kirton-in-Lindsey to Barton-on-Humber, a distance of seventy miles; there was also an immense tract of heath land below Caistor, between the low rounded hills of the chalk and oolite, and much again, of the same character, in the north-west angle of the county, to say nothing of the wastes and wilds of Axholme beyond Trent. The vast tract of heath land, north and south of Lincoln, was, by an old survey, roughly estimated at 118,400 acres. Much of this was utilised as large sheep-walks, with pieces tilled alternately, and letting from 1s. 6d. to 2s. per acre.

Turning next to the Wolds, we find enormous tracts still covered with furze, or used as rabbit warrens; the open parts studded closely with ant-hills and hassocks. On Lord Yarborough's Brocklesby Estate at Limber, Swallow, Cabourn, Rothwell, miles of the hills were covered with gorse. The Commissioner remarks: 'It is a beautiful plant for a fox-hunter. Lord Yarborough keeps a pack of hounds; if he has a fall, I hope it will be into a furze bush; he is too good to be hurt much, but a decent pricking might be beneficial to the country.' The great Linnæus, it is said, wept with joy when he was first shewn in England some acres of gorse in full flower: what then would have been his impression had he seen from the crest of the Wolds league beyond league of the golden sea of blossom? Forty years previously it had been all warren for thirty miles, from Spilsby to beyond Caistor. These commons swarmed with birds of prey, like the Harriers, which nested in regular colonies—as many as ten pairs within a small space of moor.

In 1798 the chief feature of this part of the county was the numerous rabbit-warrens of 1,000 to 4,000 acres; in eighteen miles, from Louth to Caistor, ten miles were unenclosed, except as warrens. The rent was 2s. to 3s. an acre. The total area then under rabbits in the county was immense. On the Wolds, these were chiefly the silver-haired; on Lincoln Heath, the grey sort did the best. On

each 1,000 acres it was fair to kill 2,000 couples. They were sold by the hundred of six score, averaging ten pounds the hundred. On the warrens between Gayton and Tathwell, silver skins have made from 15s. to 21s. a dozen. Winter food given was ash boughs, gorse hay, and turnips. Three couples per acre were considered winter stock. In another case, the profits on 250 acres of well-managed warren are put at £91 8s. 2d. One of the best-managed warrens in the county was Mr. Ansell's warren of North Ormsby—the stock, chiefly silver-greys; these realised 8s. to 10s. an acre profit, but in some years 15s. to 21s. The skins and carcasses were in full season in November. The silver skins were dressed for the North China markets, and used for lining the walls of Manchu dwellings, to keep out the cold; the greys were used by the hatters.

The expenses of keeping up a warren appear to have been very considerable. One man could do the killing and looking after 1,000 acres. The warren was surrounded by sod walls, lasting about seven years, in 'a middling way.' They required fresh facing once in seven years, and fresh capping with furze every three years. There was often great loss from running vermin and large birds of prey, as Kites, Buzzards, and Goshawks. Night watchers were required to 'protect them from those infinitely worse vermin, the poachers.' In heavy snows, much money had to be spent in clearing the snow from the warren walls, for in these bleak and wind-swept uplands, the heavy drift would top the walls in one night. In severe and long-protracted storms, turnips, when procurable, were considered the best food to give, as rabbits can find them under the snow by scent. Three large cartfuls a day would fodder from 1,000 to 1,200 couples. Great beds of tall thistles and nettles, acres together, abounded on the warrens, and we have been told by very old people that great elders grew and flourished, and there were mighty thorns, old as the hills, all ragged with grey lichen, and carrying clusters of haws like carcanets of coral, doubtless affording many a rich feast to the incoming Redwing and Fieldfare in the latter autumn.

The slopes and hollows of the hills were often very boggy, from springs and 'sipes' breaking out and having it all their own way, encouraging a dense growth of rushes, and making the ground so soft that no horseman could cross.

The country towns and villages in the middle marsh and sea marshes were surrounded by vast open fields. Barton field, enclosed in 1793, contained nearly 6,000 acres; and Barton, Barrow, and Goxhill together about 17,000 acres, including open arable land, open meadows, cow and horse pastures, and furze. The rotation then on strong land was almost invariably—(1) fallows, (2) wheat,

(3) beans, (4) fallows. The area under beans in the low country was enormous, the wheat stubbles being ploughed once, and the beans sown broadcast in the spring and never cleaned.

The Wold farmers seem to have been much more wide-awake and enterprising than the men of the low country. These 'clay farmers,' as they were called, were horribly behind the age. Riding through the parishes of Humberstone, Tetney, Fulstow, and Covenham, the Commissioner passed through, in September, a large open field in its fallow year, and covered with thistles past the blossom, 'high enough to hide a jackass,' yet the manure had been spread amongst these for the ensuing wheat crop—and this for miles together, everywhere in the low country. Again, he says, from Louth to Saltfleet, and from Sutton to Alford, open fields and unploughed fallows, on September 15th, covered with thistles in beautiful luxuriance.

The beans were harvested late in the autumn—usually got with much loss from the jaws of winter. These were the days of the grey goose, which our observant forefathers called the Bean-goose (*Anser segetum*), coming in great flocks in the latter Autumn to feast on the shelled beans in the open fields, till the time came when general enclosure, and a change in the rotation of the crops, finally banished them from all their old haunts. With the enclosure also disappeared that noble bird, the Great Bustard. The last we have a record of was shot in Thoresby field, and sent to Sir Joseph Banks in 1818; this was two years before his death.

If the condition of the low lands was bad, that of the fens was even worse. In 1798, in the East Fen near Spilsby, there were two thousand acres of water, which being a wet season, had the appearance of a chain of lakes surrounded by vast reed beds. Arthur Young was taken in a boat by Sir Joseph Banks into the very heart of the fen: the average depth was three to four feet, and in one place, a channel between two lakes, five to six feet, with two to three feet of black mud. In this fen were three hundred acres of cranberries on higher land, and these so plentiful that one man gathered 180 pecks in a season. Sticklebacks were so numerous that a man was known to make four shillings a day by selling them at a halfpenny a bushel. Great pikes luxuriated in these shallow meres. Sir Joseph Banks had the picture of one in his kitchen, which was known to be thirteen years old, weighing 31 lbs., an increase of $2\frac{1}{2}$ lbs. annually.

Amongst the information given by the author, is a list of the plants found in the peaty bogs, doubtless obtained through Sir Joseph Banks. This list includes many like *Sonchus palustris* and *Cineraria palustris*, long since extinct in the county (see list, p. 325).

The East, West, and Wildmore Fens contained 40,000 acres, much of which was already partially drained and converted into rough pasturage. Wildmore was a vast waste, with hundreds of acres of thistles and nettles four feet high. Thirty parishes had the right of pasturage in these fens, the common right being worth 2s. 10d. per acre. In Wildmore, the thistles were in such enormous quantities that a common complaint of the sheep was sore noses, which, ulcerating, prevented them feeding, so that numbers died. In the summer, Wildmore had been known to carry five sheep to the acre, besides horses and young cattle, with enormous flocks of geese; three geese being equal in grazing to one sheep.

In 1793, 40,000 sheep, or one to the acre, died of rot in these three fens. The number also stolen before the enclosure was incredible, whole flocks disappearing.

Beyond the fens and sea marshes came the desolate coast, where there were thousands of acres of salt fitties capable of embankment and reclamation.

In both the East and Wildmore Fens, the poor horses, called 'Wildmore tits,' got on the ice in winter, and were '*screeved*'; that is, their legs spreading outwards, the wretched animals got split.

In Deeping Fen, we are told, the mice (doubtless, the short-tailed field mouse) had multiplied to such a degree in the pastures as almost to starve the sheep. The land was alive with them, so that a certain Mr. Greaves, in a field of a few acres, killed eight or ten by his horse treading on them.

Immense flocks of geese were kept in the fens. These were plucked four, or sometimes five, times. The feathers of a dead goose were worth 6d. In Wildmore, plucked geese paid in feathers annually one shilling a head. Some owners winged them only once a quarter, taking ten feathers from each goose, making five shillings a thousand—six score to the hundred. This was long before the days of steel pens. There was nothing to prevent a cottager renting five pounds a year, and who only had a cow and a few sheep, running 1,500 to 2,000 breeding geese on the common lands.

In 1798, much of the grazing land in the marsh was occupied by men who lived on the wolds; but before the enclosure of these, the farming aristocracy dwelt in the marsh and middle marsh. The Commissioner was told, that within the last forty years, four four-wheeled carriages were kept by great graziers living at Theddlethorpe, then deserted. In fact, we have only to see the number of fine old Churches in the marsh, to understand how much larger the population must at one time have been.

When the cultivation of barley had become general on the high lands, it was not always easy to find a market for it. The price made at Lincoln was often three to five shillings in excess of the Louth market. The Louth woldsmen were in the habit of attending Lincoln, and it took four horses and a wagon to deliver ten quarters of barley, leaving home at 8 o'clock at night and returning on the following night.

The average tithe of the county was one-fifth of the rent. There can be no doubt that the first great incentive to improved farming—the drainage and marling of the land—was the Tithe Commutation Act. A very great drawback to progress was the want of leases: in the vast majority of cases, we believe, in those days, the difference between a lease and no lease was one of profit and no profit. It was against human nature for a man to make the best of his holding, farming with a sword over his head, in the shape of a possible increase of rent.

In 1798, the average rent of the low lands, which includes all sorts of land, was £1 3s. 0d. an acre; of the Wolds, 8s. 6d.; the heath, 8s.; and the average rent of the whole county, 16s. 9d. an acre.

The cropping was very varied, but on turnip soils the rotation was usually such as permitted a green crop alternately. Much less wheat, however, was grown in rotation than is now the case, oats and peas and barley being substituted for a fourth crop. Gradually, the four-course rotation became the rule—a system good in its day, before foreign competition had become so keen, but the rigorous adherence to which by landlords and tenants in late years, has probably helped much to accentuate the present state of agricultural depression.

The management of the hay crop was execrable—invariably out late—as the keep was required late in the spring for sheep. Even now, in the present day, the treatment of the hay leaves much to be desired in Lincolnshire.

The county possessed some excellent herds of cattle—longhorns and shorthorns, and a valuable cross between these. Mr. Tyndall, of Ewerby, had the best herd of old Lincolns. Lincolnshire graziers were then much exercised as to the respective merits of the old Lincoln and the new Leicester breed of sheep, but it was generally admitted these latter could be run thicker and fed quicker; not that it mattered, when three to four-shear wethers were kept. A four-year-old wether, of the old Lincoln breed, was killed near Boston, which weighed 67 lbs. a quarter. The skin, hung by the nose, measured 10 feet 2 inches to tip of tail. This sheep never had corn or oil-cake, but was made up with sow-thistles for two or three months.

Linseed cake, of most excellent quality, was used largely for fattening beasts in open yards ; some farmers using to the extent of 100 tons a year.

The price of all live-stock and grain varied greatly, and fluctuations in value were much more frequent than now. Graziers appear to have had a thorough knowledge of the weight and value of their beasts and sheep. There was less buying and selling by commission, men doing their own business : the tendency of the modern system of Auction Marts is certainly not favourable to individual judgment and skill, and we do not consider their general introduction has conduced to the farmer's profit and advantage. The butchers pull together, and it is the middle-man who, as a rule, gets rich, and the farmer poor.

The pigs, judged by the standard of to-day, were below contempt—long-legged and long-nosed, high in the back, and lop-eared.

At Louth, butter was 9d., and had risen to 1s. 3d. : by an edict of the wise Corporation, butter which did not weigh 18 oz. to the pound was to be taken away. If the butter was then no better than much that is sold in the present day, we are not surprised at the worthy burgesses, failing quality, insisting on quantity.

Prices of both stock and corn fluctuated greatly. We are told how Mr. Welfitt, an ancestor of the well-known sportsman, once stocked a close at Saltfleetby with cows bought at 19s. 6d., and shearling wethers at 20s. ; the sheep costing sixpence a head more than the cows. It would have been interesting to learn what was the profit on grazing in that year.

The roads were generally bad, and much neglected.

Farmers rode to market, conveying wife or daughter, with the butter and eggs, on the pillion seat behind.

The Commissioner speaks highly of the hospitality and style of living of the chief farmers. This, however, was by no means universal, and in some districts the custom was, what we should now consider, very rough indeed.

Stonehouse, in 'The History and Topography of the Isle of Axholme' (1839), says :—

'In the Isle, before the enclosure (this was about 100 years ago), farmers of the first and second class, many of them freeholders, had fresh meat only once or twice a week. They lived chiefly on bread, butter-milk, eggs, and flour puddings ; sometimes, but not constantly, they had malt liquor. About this time, this was generally the routine :—Sunday, bacon, sometimes butcher's meat ; Monday, ash-heap cake, with butter in a hole in the middle, and milk to drink with it ; Tuesday, pudding made of milk, wheat flour and eggs ;

Wednesday, bacon ; Thursday, ash-heap cake, and butter-milk to drink ; Friday, hot bread-and-butter ; Saturday, pan-pudding, *i.e.*, a pudding made of flour, with small bits of bacon in it ; of which a man thought himself very lucky if he got two bits.

‘In many instances, women wore the same gowns and cloaks which had served their mothers ; and nobody could remember a farmer having a complete new suit of clothes. A servant girl of the best class had forty shillings per year wage, when the most homely and necessary articles of clothing were much dearer than they are now. She got up at three o’clock in the morning to spin, and was clad chiefly in linsey wolsey garments. Could she see a servant of the present day decked out on Sunday afternoons, I believe she would have fainted with astonishment.’

Wages, however, were high compared with other parts of England. In the vast majority of cases, the cottagers and labourers kept a cow or two, pigs, and often a few sheep. In fact the Commissioner says, ‘it is impossible to speak too highly in praise of the cottage system of Lincolnshire.’ The poor rates, he says, on the average did not amount to one-third of what is paid in Suffolk. There can be no doubt whatever that the ancient common rights were a great advantage to the rural population ; moreover, as Arthur Young very wisely remarks, there is ‘another object yet more important, the attachment which men must inevitably feel to their country, when they partake thus in the property of it.’

At the time of the Survey, much planting had been undertaken, but of all planters in the country, Lord Yarborough had taken the lead, and for ten years past had planted 100 acres annually, which he was continuing in the same proportion. The beautiful plantations about Croxby Lake, and Mr. Angerstein’s Stainton plantations, had not been commenced.

Here and there in the report of the Survey, we come across interesting local items, for instance, that the men of Marshchapel and Grainthorpe are famous for cutting hay-stacks round : they cut them as true as if turned in a lathe.

The marsh shepherds had a breed of dogs trained to lift overcast, or far-wheltered sheep, and, when travelling to Alford, the Commissioner witnessed a dog of this sort lift twenty-one in succession.

An old man, near North Somercotes, had a great reputation for curing ‘giddy,’ or sturdy sheep, by trepanning, and saved about half of those operated upon. This operation has been again and again performed to our knowledge, and successfully, within the last sixty years, by a marsh shepherd : he used an instrument to cut through the skull like a wad punch, with the cutting edge serrated.

The Agricultural Survey of Lincolnshire in 1798, was a great and useful work in its day, and such as would be likely to suggest and encourage improvements, and it has, moreover, the merit of providing a hundred years later, a large amount of interesting information in connection with those now far-away times, which otherwise would have been lost altogether.

My friend Mr. Peacock has sent me Arthur Young's plant list, in our more modern nomenclature, with notes on the present frequency of the species. It is as follows :—

Caltha palustris L. Common.

Nasturtium amphibium R.Br. Fairly common.

Lychnis flos-cuculi L. Common.

Hypericum quadratum Stokes. Common.

Lotus corniculatus L. Common.

Potentilla anserina L. Very common.

Potentilla comarum Nestl. Not uncommon in the bogs of our sandy commons still.

Myriophyllum verticillatum L. Not common.

Lythrum salicaria L. Common.

Epilobium hirsutum L. Very common.

Hydrocotyle vulgaris L. Common.

Cicuta virosa L. Extinct, I believe.

Angelica sylvestris L. Common.

Peucedanum palustre Moench. Very rare.

Eupatorium cannabinum L. Common.

Bidens cernua L. Not very uncommon.

Senecio jacobæa L. Very common.

Senecio palustris DC. Extinct, I believe.

Carduus palustris Hoffm. Very common.

Sonchus palustris L. Quite extinct.

Lysimachia vulgaris L. Very common.

Menyanthes trifoliata L. Not at all uncommon.

Myosotis palustris With. Common.

Convolvulus sepium R.Br. Common.

Pedicularis palustris L. Common.

Mentha hirsuta L. Common.

- Teucrium scordium** L. Very rare.
Polygonum amphibium L. Common.
Rumex hydrolapathum Huds. Growing very uncommon.
Salix caprea L. Still common.
Salix repens L. Common.
Hydrocharis morsus-ranæ L. Still common.
Iris pseudacorus L. Common.
Juncus effusus L. Not uncommon.
Alisma plantago L. Common.
Eriophorum angustifolium Roth. Common, but growing more rare.
Schoenus nigricans L. Rare.
Carex vulgaris Fr. Rather rare.
Calamagrostis epigeios Roth. Fairly common.
Phragmites communis Trin. Common.
Glyceria aquatica Sm. Common.
Lastrea thelypteris Presl. Rare now.
Ophioglossum vulgatum L. Common.

Young's list also contained the Moss *Hypnum rutabulum* of Sir Joseph Banks' nomenclature. Where I use the phrases 'common,' etc., I mean in suitable soils, localities, carrs, fens, etc., which the reader must supply for himself.

NOTE—BOTANY.

New Records for North Lancashire, 1894.—The only new records for this portion of the county that have come to my notice for 1894 are:—

Ornithogalum umbellatum L. Roudsea Woods, Mr. W. Duckworth. Miss Hodgson's record (1874. 'Orchards in Furness') is too vague to be a definite statement of locality. I have seen a specimen.

**Lilium martagon* L. Graithwaite Woods, Mr. W. Duckworth.

Daphne mezereum L. All the records for this (see Baker's 'Flora,' 183) rest on rather doubtful evidence, but a friend of mine had in his garden a specimen found by woodcutters in the woods near Satterthwaite. Bird-sown most likely.

Tragopogon pratensis L. To my surprise there appears to be no definite record or rather localised record for this species in any of the lists. I have found it on the railway embankment at Kirkby-in-Furness; shore level near Aldingham; raised beach at Bardsea; road-side between Bardsea and Conishead Priory; waste ground about North Lonsdale Ironworks, near Ulverston. Mr. Baker kindly tells me that he has noticed it near Grange-over-Sands, and I saw it on shore-bank between Kent's Bank and Humphrey Head. Coast stations all of them.—S. L. PETTY, Ulverston, August 13th, 1895.

NOTES—ORNITHOLOGY.

Food of Little Auk.—I notice Mr. Cordeaux ('Naturalist,' April, p. 118), speaking of Little Auks (*Mergulus alle*), says, 'In no case that I can ascertain was any sort of food found in the stomach of the captured bird.' The specimen I recorded in the March 'Naturalist,' and which I dissected and stuffed, had been feeding on small shrimps, the species we call in this district 'sand hoppers.'—H. T. ARCHER, Newcastle-on-Tyne, April 4th, 1895.

Dotterell at Scarborough.—On May 24th, 1895, I had brought to me for identification a handsome adult female Dotterel (*Eudromias morinellus*) which had been shot the same morning at Weaverthorpe, about nine miles from Scarborough. It was in perfect plumage, and on dissection the ovaries proved to contain well developed eggs.—WM. J. CLARKE, Scarborough, August 2nd, 1895.

Great Skua (?) at Scarborough.—I note the record of this bird in the current number of 'The Naturalist.' Is your correspondent quite sure of his bird. I had it reported that in November last (I have not the exact date) a Great Skua had been shot near the town, but on going to see it, it turned out to be a Lesser Black-backed Gull, in immature plumage. It was nevertheless, I believe sold as a Great Skua, but to whom I do not know.—WM. J. CLARKE, August 2nd, 1895.

Ornithological Notes from East Yorkshire.—

Grey Phalarope (*Phalaropus fulicarius*) shot by myself near Burlington, Sept. 1859. I first saw it swimming in a Wold pond.

Spotted Sandpiper (*Tringoides macularius*). This very rare bird was shot by one of my sons in October 1892, flying from a rush-grown pond near Rowlstone in Holderness. This scarce migrant of Gätke's 'Birds of Heligoland' (chap. Migration) had no doubt flown *direct* across the Atlantic—the distance from Newfoundland to Ireland (1,600 miles) being accomplished in favourable weather in nine or ten hours; the well-known Hooded Crow, by no means a rapid flyer, according to repeated observations, taking about three hours to fly the 320 miles across the German Ocean from Heligoland to North Lincolnshire, which is directly opposite.

Water Rail (*Rallus aquaticus*) shot near a ditch in Rowlstone by myself, Nov. 1890.

White Stork (*Ciconia alba*) shot on the top of a barn in Mappleton, Holderness, May 1892. I have just heard that *two* White Storks were lately shot by the gamekeeper at Chesterford Park, Essex. He thought they were Wild Geese by their flight.

Sand Grouse (*Syrrhaptes paradoxus*). I saw in May 1891 a small flock of six or seven near the cliff top at Rowlstone. I took them at first, though unusually late in the season, for Golden Plover. A correspondent in 'The Field' in the following week alluded to their similarity of flight. I have a fine pair shot soon afterwards in Holderness.

Green Parrakeet, small long-tailed. One shot in a small covert near Rowlstone, 1st September, 1894. It was very healthy, in brilliant plumage, flying about and hovering and screaming exactly like a young hawk. It had probably recently escaped from some passing vessel.

Pied Flycatcher (*Muscicapa atricapilla*). I found its nest in June, about seven feet high in a yew tree, not far from water. Six eggs, very like the Redstart's (nest not lined with feathers), in a plantation at Hullbank, Hull.

Little Auk (*Mergulus alle*). A great many of these birds were found dead or dying, on or near the Holderness coast and further north, during the severe winter this year. I saw a fine specimen picked up in the vicar's garden at Mappleton. Quail (*Coturnix coturnix*). Many years ago I occasionally shot one or two of these birds at Rowlstone before it was enclosed.

A fine young Peregrine Falcon (*Falco peregrinus*) was shot early this year near Rowlstone. Another, a very fine old bird, was shot about the same date at Sutton near Hull.

—B. B. HAWORTH-BOOTH, Hullbank Hall, near Hull, August 10th, 1895.

Nov. 1895.

NOTES—MAMMALIA.

Whiskered Bat in Derbyshire.—Through the courtesy of Mr. G. F. Gee, I have been able to examine a Whiskered Bat (*Vespertilio mystacinus*), which was killed last June, in broad daylight, at Cromford.—CHAS. OLDHAM, Romiley, Aug. 6, 1895.

Porpoise in the Mersey.—Mr. Chas. Madeley, of the Warrington Museum, informs me that a Porpoise (*Phocaena communis*) was shot in the polluted waters of the Mersey, at Latchford Weir, a mile or so above Warrington, on May 23rd last.—CHAS. OLDHAM, Romiley, Aug. 6, 1895.

Hedgehogs in the Lake District and Nottinghamshire.—Apropos of Mr. Friend's note in the July number of the 'Naturalist,' it may be worth while to record the occurrence of the Hedgehog in another part of the Lake District. Returning from Threlkeld Station to St. John's Vale on the evening of July 3rd, I noticed, near Wanthwaite Bridge, an animal running along the road which, on being overtaken, proved to be a very large specimen of *Erinaceus europæus* L. The Hedgehog is still common in Notts, in spite of the gamekeepers, who wage a pitiless war against it. During the last two years I have seen over two dozen, alive or dead, in the county.—J. W. CARR, University College, Nottingham, August 3, 1895.

NOTE—FUNGI.

New Lincolnshire Fungi.—The following Fungi were collected during the month of August in Lincolnshire, and are not included in the list given in Mr. Lees' Outline Flora of the county:—

Amanitopsis strangulatus Fr.

Amanita excelsus Fr. Wood near Market Rasen.

Amanita strobiliformis Vitt. Outskirts of Broughton Wood.

Hypholoma candolleanus Fr. Winterton.

Coprinus fimetarius Fr. Near Haxey.

Gomphidius roseus Fr. Fir-wood in Linwood Warren.

Paxillus atro-tomentosus Fr. Appleby Wood.

Lactarius mitissimus Fr. Broughton Wood.

Russula rubra Fr. Broughton Wood.

Marasmius institutus Fr. Near Haxey.

Boletus bovinus L. Fir-wood, Linwood Warren.

Tremella mesenterica Retz. Appleby Wood.

—W. FOWLER, Liversedge Vicarage, August 31st, 1895.

NOTES AND NEWS.

'The | Footpath Manual | giving an outline of | the Law relating to Public Footpaths, Roads, &c., for the use | of District and Parish Councils, &c. | By Henry Allnutt, | Secretary to the National Footpath Preservation Society. | [woodcut] | London: | . . . | — | 1895' has lately reached us from the Footpath Preservation Society. It is a small booklet of 36 pages—in paper boards, and includes various notes as to the legal aspects of the footpath and barbed-wire fence questions, and reports of cases.

A little book by Mr. H. K. Swann, entitled 'Nature in Acadie' (London, John Bale & Sons, 1895, cr. 8vo. cloth, 74 pages, 3/6) treats in a gossiping manner of the natural history of a brief sojourn in Nova Scotia from October to May: an appendix gives a list of the scientific names of the birds mentioned in the text. The observations themselves are chronological, and dates given. The work itself is prefaced by a two-page poem to 'H. D. Thoreau' from the pen of the author, and a frontispiece represents 'Melville Island.'

THE OTTER IN THE MID-TRENT VALLEY AND ITS TRIBUTARIES.

F. B. WHITLOCK,

Beeston, Notts.

THE Otter is by no means an extinct species in certain tributaries of the Trent, and even on the main river itself in the quieter Derbyshire reaches, and more rarely in the vicinity of large towns, one still hears of an example being occasionally seen or captured. As I write I note that the 'Nottingham Guardian' reports an individual killed at Cavendish Bridge. I can well remember a few years back seeing a specimen hanging in a Nottingham fishmonger's shop. This had been secured at Wilford, only a short distance outside the borough. It is, however, on such tributaries as the Derwent, Dove, and Soar, that the chief local haunts of this species exist at the present time. On the latter river it may be said to be fairly plentiful. By plentiful, I of course do not mean to say that it is anywhere numerous, but still, if search is properly conducted in suitable haunts, individuals are pretty certain to be met with. The locality need not be particularly quiet nor yet secluded, but it must afford ample cover in the nature of thickets, osier beds, and old trees overhanging the water.

As regards the Derwent, if one reads the piscatorial news in the local newspapers, one often comes across a note that Otters have been seen by fishermen and others. Amongst various items the following, which appeared in the 'Nottingham Daily Guardian' at the beginning of last year, seems of special interest:—'A Midland Railway platelayer, coming in the direction of Whittington from Dunston sidings, came across a pair of dead Otters lying on the railway, both apparently having been killed by a passing train. The animals proved to be a male and female, the former especially being a fine specimen.'

It is in the Soar Valley, however, that my personal meetings with Otters have taken place. One of the first I can remember was trapped (about 1869), and only slightly injured, near Stanford-on-Soar. It was afterwards exhibited by a man named Ward, at Loughborough. He succeeded in keeping it alive for some time. I forget its eventual fate. Since then I have from time to time heard of others being seen or shot, and my father on more than one occasion, when quietly fishing some of the neighbouring trout streams, has been startled by an Otter plunging into the water. A few years ago

an exceptionally large male was shot near Zouch Mills, by Mr. Tom Marshall. It was preserved and exhibited a short time afterwards in Loughborough. Unfortunately I have lost the note referring to the dimensions of this individual. More recently, one moonlight evening, I was ensconced on the end of an island in the Soar, on the look-out for wild duck, when I heard something flop into the water. This proved, however, to be nothing more than a Little Grebe which had flown from a neighbouring brook to feed in the river. A few minutes later, however, I was conscious of some creature repeatedly diving near at hand, but thinking it was only the Grebe, I paid little heed to the noise. However, I soon had to alter my opinion, for presently up came a broad, flat head, sniffing and blowing, from the depths of the water, and only a few yards in front of me. I soon recognised I had an Otter to deal with. The Otter, too, soon recognised me, for with repeated dives it took itself off. On telling my brother-in-law, who rents the island, of my experience, he decided that he and his keeper should watch and, if possible, secure the animal. They accordingly waited night after night, and though several times successful in seeing one or more Otters come floating down the river like some dead log, the slightest movement on the part of the watchers was sufficient to cause them to immediately disappear. This went on till about the middle of last November, when the lair was discovered in the following manner. My brother-in-law was out in the early part of the day, beating some beds of flags for wild fowl, when happening to glance towards an old recumbent willow, he thought he observed some creature eyeing him from an aperture in the crown. Before he could make out what it was, two old Otters and a pair or more of young ones plunged into the water and disappeared. On further examination the willow was found to be hollow, and though gaunt and almost blown down to the level of the river, growing vigorously, as willows do.* The crown contained a chamber, and here the Otters had made their home, and probably the young were born. The lair was comfortably lined with powdered willow wood and dead leaves, and had convenient apertures commanding a view both up and down the backwater. The female was soon afterwards secured. She was in poor condition, and had evidently been suckling a litter of young in the earlier part of the year. Though her length from nose to tail end was 45 inches, and girth 16 inches, she only weighed 16 lbs. The dog was killed just about a month later, and in the same spot. He measured 45 inches in length, the same as the female, but weighed no less than $24\frac{3}{4}$ lbs.

* It is worth noting that James Harley, a Loughborough naturalist, records the finding of a similar air in the same locality, at the beginning of the present century.

Near the lair was found the Otters' dining place—a spit of turf, with the herbage all flattened out and the tail ends of fish lying around.

At the end of August, in the present year, I renewed my acquaintance with the Otter in the same locality. I was paddling about with my brother-in-law in a light boat, in a very sedgy part of the river, huge tufts of flags were growing all around like islands. We were waiting in the dusk of the evening for a shot at any ducks that might come down to feed. Presently we heard, about a hundred yards away, a sound as of some four-footed creature crashing through the flags at the side of the river. I suggested that it might be cattle come down to drink, or some stray dog ratting. The noise continuing, we rowed our boat up the stream to investigate. After a few minutes had elapsed, I spied two heads swimming away in opposite directions. Presently one of these heads, with much sniffing and snorting, advanced to a tuft of sedges, and the full length of a young Otter was exposed to view as the animal raised itself half out of the water. It appeared to be about three-parts grown, the same as its companion, which swam and dived around our boat without the least concern. Both were often within an oar's length of us.

Whilst this was going on we continually heard a shrill whistling sound coming from higher up the stream; the notes, which may be represented by the syllables 'prip, preep,' being very bird-like. Indeed I felt almost certain they were uttered by some belated Kingfisher or Sandpiper, several of which we knew were about. However, my companion was of a different opinion, and told me he had frequently heard the same noise before. He was certain the sounds were produced by Otters. He was right, too, for on following the noise we came up with a pair of old Otters, which were either calling one to the other or to their young lower down the stream. The apparent movement of the sound up and down the river which had aided in deceiving me as to its origin, was now explained, for they were beating the sedges on opposite sides of the stream. I presume we were witnessing a rat hunt, but whether successful or not I cannot say, for, unlike their progeny, the old Otters were very wary, and soon dived away.

It is strange that Bell and more recent writers make no mention of any sound uttered by the Otter, but I can hardly suppose that this shrill whistling noise has not been commonly heard by other observers. It may be worth mentioning that we did not hear the young uttering any cry in response to their parents.

I learned that several people, fishermen and others, had seen this family party; a lock-keeper having observed three of them cross over

the sill of a weir, and a man, quietly fishing in broad daylight, had been startled by an Otter silently stealing under the cover of a thick hedge and plunging into the river within a few feet of where he sat. An amusing story is told of another fisherman, who, sport being bad, was half dozing, when he was suddenly aware of some creature protruding its head and shoulders from the water near his float. He had never seen such an animal before. It was too much for him, and he bolted, and only came back to secure his rod after carefully watching if the mysterious creature had disappeared. I need hardly say it was an Otter.

NOTES—ORNITHOLOGY.

The Night-jar in Cumberland.—I feel tempted to offer a few remarks on this interesting bird suggested by Mr. Friend's notes, which appeared in the August issue of 'The Naturalist.' It is perhaps true that *Caprimulgus europæus* L. is really a rara avis among the Lakes, yet in my experience I have noted its presence around Ullswater, about Bennet Head in Watermillock parish, at about 900 to 1,000 feet above sea-level. Here with my bedroom windows open, I have repeatedly listened to its harsh guttural cry when hawking for food round a group of sycamore trees which sheltered the dwelling. It is more common, however, in the plain of Cumberland towards Carlisle. The last time I saw a pair of these birds was during the early summer of 1894 in Flimby Wood, about two miles S. of Maryport. In this wood they regularly breed, although their nests are not often discovered. I have been shown eggs which were gathered there by the late Mr. W. Grey Wallis of Risehow, a local ornithologist. He found them lying loosely on the dry ground among dead leaves overshadowed by beech trees. Some few years ago, one of these birds suddenly alighted on the deck of a coasting vessel in Maryport Harbour, to the amazement of the crew, who looked upon it with superstition as they had never seen a bird with such a wide extent of gape, or as one of them said 'with hair inside its mouth.' Owing to the nocturnal flight of the night-jar, it is seldom seen, even where not rare.—W. HODGSON, A.L.S., Workington, Sep. 26th, 1895.

Hawfinch at Ben Rhydding—I have pleasure in again putting on record the occurrence of the Hawfinch (*Coccothraustes vulgaris*) in Yorkshire. On the 31st of July, of this year, Mr. W. Hoffman Wood, of Ben Rhydding, sent me for identification a specimen of this bird, which he said had committed suicide by flying against the netting around the tennis lawn of the village.—HENRY CROWTHER, The Museum, Leeds, Nov. 18th, 1895.

Old Yorkshire Bird Notes.—From a copy of T. Bewick's 'British Birds,' Newcastle, 1809, belonging to my brother, purchased about the time of publication by my father's maternal grandfather, Michael Woodcock, surgeon, of Hemsworth, the following notes are taken. They are made in pencil on the margin of the page, and appear all to fall between the dates 1810 and 1818. The nomenclature, English and Latin, is Thomas Bewick's.

The White-tailed Eagle (*Falco albicilla* L.).—'One shot at Hessle a few years ago' (p. 51). No doubt this could be traced in the local papers of the time.

The Wryneck (*Lynx torquilla* L.).—'Two shot near Norwood, 1818' (p. 138).

The Green Woodpecker (*Picus viridis* L.).—'Very common' (p. 141).

The Middle-spotted Woodpecker (*Picus medius* L.).—'One shot in Hemsworth Parish, 181—?' (p. 143).

The Nuthatch (*Sitta europea* L.).—'Several shot in Mr. Alexander's garden in the year 1817' (p. 145).

The Crossbill (*Loxia curvirostra* L.).—'One shot in the yew tree in Hemsworth Churchyard' (p. 155).—E. ADRIAN WOODRUFFE-PEACOCK, Cadney Vicarage, Brigg.

SOME ADDITIONAL WEST RIDING PLANT-LOCALITIES.

W. WEST, JUN.,

Scholar of St. John's College, Cambridge.

THE following notes have accumulated since my father published his 'Additional Localities for the Vascular Plants of the West Riding Flora,' in this journal for October, 1888. I am indebted to Mr. J. Beanland, of Bradford, for much interesting information.

Trollius europæus Linn. Mr. Beanland informs me that this still occurs on grit within the Aire district, in a gill on the N.W. side of Rombald's Moor.

Actæa spicata Linn. This, which is not recorded for the Ribble district in the 'Flora,' occurs in several localities in the upper portion of the dale. One is on a limestone ridge near Ribbleshead, alt. 1,110–1,150 ft., where it was found by Mr. Albert Wilson, of Bradford; in company with Mr. E. J. Lumb, I saw plenty of it there in 1889. The other localities are about the N.E. side of Moughton Fell.

Meconopsis cambrica Vig. Mr. E. J. Lumb and myself found this in Douk Gill, near Horton-in-Ribblesdale, in 1888; but it was probably an escape.

Cochlearia Armoracia Linn. was flowering plentifully last June in an old limestone quarry near Rilstone, between Skipton and Grassington.

Teesdalia nudicaulis R.Br. When out with Mr. E. J. Lumb, on August 4th, 1890, we found this abundantly (growing with *Ornithopus perpusillus* L.) on sandy ground by the side of a field near Bessacarr, E.S.E. of Doncaster. Many of the plants were over ten inches in height.

Stellaria aquatica Scop. occurs sparingly in a ditch about a mile S.S.E. of Doncaster Station.

Sagina nodosa Fenzl. occurs in a bog a mile above Bingley.

Buda rubra Dum. occurs (1894) in lanes a little S. of Arthington, but within the Wharfe drainage-area; and (1890) by roads on the W. side of Savile Park, Halifax.

Hypericum elodes Linn. In September 1894, my father and myself saw this species—a rare one in the Riding—growing in moderate quantity in one locality in the Adel district distinct from that mentioned in the 'Flora' from which it was 'perhaps now gone.'

Malva moschata Linn. occurs on the Midland rail-bank about half a mile north of Masborough.

Genista anglica Linn. was still on Adel Blackmoor in 1888.

Trifolium arvense Linn. was noticed on a road-side near Horsforth by my father in 1894.

Prunus Padus Linn. is abundant on limestone ridges in Upper Ribblesdale, a long way from any stream.

Dryas octopetala Linn. When at Arncliffe, on June 20th this year, with Mr. S. Wood, we found several specimens of this plant in one place lower down than the well-known limited area in which it was fruiting plentifully. I see that Mr. Shuffrey records it for a second station, alt. about 900 ft.; in this lower station of ours the altitude was 1,025 ft., and we saw no likely place for it as low as 900 ft.

Potentilla rubens Vill. is fairly plentiful on some limestone scars near Ribbleshead, alt. 1,100–1,150 ft.

Sedum Telephium Linn. b. **Fabaria** H. C. Wats. is plentiful on one part of Kilnsey Crag.

Valerianella dentata Poll. occurs in cornfields about Cantley, S.E. of Doncaster.

Chrysanthemum segetum Linn. occurred in great abundance last year (1894) in a sandy cornfield half a mile N.W. of Cookridge Hall.

Leontodon hirtus Linn. My father noticed this on Wigton Moor some years ago, and with him I have seen it on heathy pastures at Denholme and Wilsden.

Polygonum viviparum Linn. I have seen on the N.E. side of Moughton Fell, alt. 1,000 ft.

Salix herbacea Linn. This species is so seldom seen in West Yorkshire, that it may be of interest to mention that it was found flowering among the snow on Whernside, on May 19th, 1891, by Mr. E. J. Lumb and my brother, G. S. West; and that its dead leaves were noted in the same place on March 31st, 1893, by my father and myself.

Stratiotes Aloides Linn. With regard to the observation made under this species on p. 442 of the 'Flora,' it may be of interest to state that it flowered very plentifully this June (1895), in one of its Doncaster localities.

Neottia Nidus-Avis Rich. was seen in June this year by Mr. S. Wood and myself, in a rocky wood, alt. 650 ft., on the mountain limestone $1\frac{1}{2}$ miles from Kilnsey.

Habenaria bifolia R.Br. was found very sparingly in a pasture near Ribbleshead, alt 1,100 ft.; G. S. West and J. Beanland.

Polygonatum officinale All. Limestone ridge near Ribbleshead, alt. 1,125 ft.; G. S. West, E. J. Lumb, and J. Beanland (1890).
With it was

Convallaria majalis Linn., flowering plentifully, alt. 1,100–1,125 feet. The upward limit is given at 750 ft. in the 'Flora.'

Gagea fascicularis Salisb. This is included in the Bolton Woods list in 'West Yorkshire,' but is not mentioned in the 'Flora' for any Wharfedale locality above Boston Spa. It may therefore be worth while recording the fact that Mr. E. J. Lumb and myself saw the plant in Bolton Woods in 1889 in some plenty. It also occurs more than nine miles further down the valley, near Burley, where it was found by Mr. Breare of that place, and where Mr. Beanland has recently seen it.

Paris quadrifolia Linn. occurs near Alum Pot in Upper Ribblesdale, at an elevation of rather over 1,125 ft. (The 'Flora' gives 900 ft. as its greatest elevation within the Riding.) Holden Gill, near Steeton; G. S. West.

Juncus obtusiflorus Ehrh. occurred sparingly about a mile S.S.E. of Doncaster in 1890.

Potamogeton alpinus Balb. grows in the Leeds and Liverpool canal above Bingley, two or three miles from the locality 'near Gilstead.'

Zannichellia brachystemon J. Gay, was seen on Aug. 4th, 1890, in a ditch about a mile S.S.E. of Doncaster by Mr. E. J. Lumb and myself.

Eriophorum latifolium Hoppe. Many years ago my father found this in another station in the Malham district (some miles distant from the one near Airtion which is recorded in the 'Flora'), and I saw the plant growing there last June; the altitude is a little over 1,200 ft.

Carex pallescens Linn. occurs in Grass Wood, Grassington, in Shipley Glen, and plentifully in open ground south of the river near Bingley.

Hordeum sylvaticum Huds. This occurs in some plenty in one portion of Holden Gill, near Steeton, alt. 525–600 ft., where it was discovered by Mr. J. Eastwood. It has since been seen there by several members of the Bradford Naturalists' Society, but, prior to this, has been erroneously recorded as *H. pratense* Huds.; why, I am unable to say. However, *H. pratense* does occur, as stated by my father on p. 303 of this journal for 1888, in the meadows (alt. about 300 ft.) by the river near Kildwick and Steeton, over 20 miles W. of its nearest locality on the Permian strata.

NOTES—LEPIDOPTERA.

Acherontia atropos at Huddersfield.—A few days ago Mr. Fitton brought me a specimen of this insect, found several weeks ago near Kirkburton.—GEO. T. PORRITT, Huddersfield, Nov. 11th, 1895.

Cosmia paleacea in South Lancashire.—On August 14th, 1894, Mr. Charles Oldham, of Woodford, Essex, and I visited Risley Moss, near Warrington, for the purpose of collecting larvæ of *Lophopteryx camelina* and *Notodonta dromedarius*. As we were beating one of the stunted birches on the moss, a newly emerged specimen of *Cosmia paleacea* Esp. dropped into the old umbrella which served us as a beating net. Mr. Oldham visited the moss again on the 18th, and obtained a second moth in the same way. Newman, who wrote of this species under the name of *Euperia fulvago* Hübn., stated that it had been taken in Lancashire, but gave no details of the locality ('British Moths,' p. 380), and it was only included provisionally by Mr. J. W. Ellis, in his list of Lancashire and Cheshire Noctuæ ('Naturalist,' 1886, p. 292), on the strength of Newman's record.—CHAS. OLDHAM, Romiley, Nov. 6th, 1895.

NOTE—MAMMALIA.

Hedgehog at Lorton ('Naturalist,' August 1895, p. 242).—The following notice of *Erinaceus europæus* L. is copied from my notes of a paper read before the Carlisle branch of the Cumberland and Westmorland Association for the Advancement of Literature and Science, about ten years ago. The Hedgehog is an animal which has been the victim of much absurd prejudice and superstitious ignorance. The once current idea of his sucking the teats of recumbent cows may be considered as exploded. The charge also of being destructive to young and helpless fledglings, I consider to be grievously exaggerated. Frequently as I have observed this animal questing for food-supplies, it has been uniformly on some moss-covered bank, or hedgerow, where, sniffing as he went, and boring with his snout like a pig, you might hear a low grunt of satisfaction as he unearthed some tiny snail or chrysalis, which you could plainly hear him crunching between his jaws the next moment. The urchin is extremely pugnacious in temper. On one occasion, when bustard fishing in the river Roe near Raughton Head, accompanied by a young brother, we were surprised by hearing piercing squeals of distress among the grass of a meadow behind us. On quietly reconnoitring whence the sounds proceeded, we discovered two hedgehogs in deadly conflict. One of the combatants had seized the other by a hind leg to which he clung with all the fierce tenacity of a bulldog, despite the agonising screams of the sufferer. Only by severe pressure upon his throat with the butt end of my rod could I succeed in making him relax his grip. On another angling excursion in the neighbourhood of Cockbridge on the river Ellen, I discovered an urchin's nest, evidently of very recent construction. Externally the material used consisted of the last year's leaves and haulm of *Carex paludosa*, which must have been bitten off by the animal, and carried about 200 yards from the very opposite end of the meadow, where a large patch of ground was covered by the sedge referred to. On opening the nest, I was surprised to discover the mother urchin in the very act of parturition. What funny looking little objects the infant hedgehogs are. Their naked skins are of a deep pinky red having only the merest rudiments of prickles perceptible in fine silky hairs of snowy whiteness. Carefully replacing the covering of the nest, I took my leave of the interesting 'lady in the straw.'—W. HODGSON, Workington, September 26th, 1895.

The publication of this and our previous notes on the Hedgehog in Lakeland, so far from being superfluous, appears to be needed; for Mr. Macpherson's otherwise excellent and well-written 'Vertebrate Fauna of Lakeland' is too often wanting in explicit statements as to distribution and faunal status, and in this particular instance we are left to act on the supposition that 'silence gives consent' to a presumption that *Erinaceus europæus* is to be found in our North Western Counties.—ED.

BIRD-LIFE AND STRUCTURE.

The Structure | and | Life of Birds | By | F. W. HEADLEY, M.A., F.Z.S. |
 . . | with Seventy-eight Illustrations | London | Macmillan and Co. | . . |
 1895 | . . [8vo. cloth, pp. xx + 412, with frontispiece and 77 illustrations].

THE aim of this book, so the author tells us, 'is to give good evidence of the development of birds from reptilian ancestors,' to tell of their 'colours, song, instinct, reason, and migration.' To honestly review such a book in the space at my disposal is impossible; it will, however, enable me to recommend the work to those who are desirous of studying birds biologically. It is a fair reflection of the change which is coming over the study of natural history. The old out-door ornithologists are to-day's sportsmen, who study the bionomics of their quarry that they may outwit them; whilst the new naturalists, or a large portion, turn rather to scalpel and microscope for original research.

Mr. Headley's work is not intended for the so-called beginner, there is no attempt at a popular treatment, several of its chapters, though not chopped into paragraphs and loaded with heavy-faced letters, are real helps to exact work. The ornithologist, unless he is well acquainted with avian and reptilian anatomy, will not read far before he will find it necessary to refer to actual specimens. The book, without doubt, has been written from such types, to which it owes a certain stiffness and greater accuracy. The chapters on 'Flight' (102 pages) and 'Form and Function' (112 pages) are excellent work, full of admirable matter, and though the book loses its balance from them, it would be hard to say where they might judiciously be curtailed.

The get-up of the book, printing, and illustrations are good, though the latter are too few for the treatment the topic is accorded. Two diagrams, for instance, of the skeletons of a bird and a lizard are made the subject of many references, yet they are printed back to back, and lettered at right angles to each other. The two on one sheet, lettered in one direction, and folded to open outside the margin of the book, would be very useful. One objects naturally also to such statements as 'all the many buttercups are yellow or white,' for if the buttercup-tribe is meant, the assertion has no weight. Or, again, the remark that 'it is rarely that we find among flowers even an order in which red, blue, and yellow are represented,' makes one think that the members of the pea-tribe and others are unknown to the author, which is almost confirmed when he tells us that 'in the multitudinous British compositæ, red is unknown.' I hold it as unfair for a writer on birds to extol the colouring of exotic species by comparisons with English flowers, when the latter are not given their full value for their colour

variation ; to some botanists a sweet-pea blossom is grander than the dress of any bird.

Such points as these do not, however, mar the book ; it is full of careful work, credit being given to those who have helped the author and to those writers from whom he quotes. The student is to be congratulated on having a handy scientific and accurate book on the Life and Functions of Birds.

HENRY CROWTHER, F.R.M.S.

THE MUSEUM, LEEDS, Nov. 20th, 1895.

NOTE—BOTANY.

Brassica muralis.—In reference to the note in the November number, p. 307, that this plant has appeared for the first time in Upper Wharfedale, I may say that I found a good specimen in flower on the 21st September last, on the canal-bank between Cooper Bridge and Mirfield. I shall be glad to know if any of your readers have met with it at any time in this district.—F. CROSLAND, Wentworth Street, Huddersfield, November 8th, 1895.

NOTE—DIPTERA.

Occurrence of a Rare Dipteron at Silverdale.—The Diptera are so little known or studied by British entomologists that the notice of the capture of a rare fly is not likely to excite much interest, though I am glad to find that rather more attention has been paid to them during the last few years than before. The neglect of this order has arisen in a great measure from the want of a good text-book in the English language, for with the exception of a few papers upon separate families published in different periodicals, there is no work upon British Diptera besides that by the late Mr. Francis Walker in the 'Insecta Britannica,' which is very imperfect and out of date. At present, a Dipterist who wishes to determine the names of his captures must be able to read both Latin and a little German, for the best works that we have upon European flies are in those languages. Schiner's 'Fauna Austriaca' (Diptera) (in German) is indispensable, and Zetterstedt's 'Diptera Scandaniaviæ' (in Latin) is most valuable, as it contains the description of by far the greater number of British species. It is very desirable that this want should be removed. The only English entomologist who is capable of performing the task is Mr. Verrall ; he has a magnificent collection of Diptera both British and Foreign ; he has already published a very useful list of species, and I hope he will soon supplement this by a manual or text-book.

The particular species that I wish to record is the *Cynomyia alpina* Zett. I found a single male of this fly in August last at Silverdale, and captured several more in the same neighbourhood twenty years ago. I have never seen it in any other locality, and Mr. Verrall informs me that he never found it.—R. H. MEADE, Bradford, Nov. 1st, 1895.

NOTES AND NEWS.

Many friends of the late Mr. Alexander Goodman More are wishful to see a short memoir of him published. To which end it is hoped that any one having letters or papers of interest will lend them for perusal and selection to his sister, Miss More, 74, Leinster Road, Rathmines, Dublin.

The great loss which British botanical Science has sustained during the year now drawing to its close in the death of Prof. C. C. Babington, M.A., F.R.S., of Cambridge, cannot be passed over without mention in our pages, for although not a north countryman, his sterling personal characteristics no less than his scientific eminence have endeared his memory to all who knew him, even if by repute only.

THE YORKSHIRE BOULDER COMMITTEE AND ITS NINTH YEAR'S WORK.

THOMAS TATE, F.G.S.,

Leeds, Hon. Secretary to the Committee.

DURING the year our knowledge of the glacial deposits in the Calder Valley has been extended. Mr. Burton, Horbury, reported the cutting of a trench 26 ft. deep across the valley in connection with the drainage works at Mirfield. The proportion of erratics was greater than at Horbury (reported 1893), and small mountain limestone boulders were present, though not so plentifully as were observed at Savile Town. At both localities where these have been noted they were usually decomposed for half an inch or so from the surface. Mr. Thomas Saltonstall has found numerous small unstriated pebbles between Sowerby and Luddendenfoot at altitudes ranging from 500 to 800 ft. above the sea. Possibly these may be the remnants of earlier deposits than those we are now considering. But the most instructive excavation is one still going on at Millwood, Todmorden, 600 ft. above sea-level, reported by Mr. Robert Law, F.G.S., an active member of this Committee. It is interesting as being the most westerly exposure of boulder clay as yet observed in this valley. It has therefore been visited from time to time by other members of this Committee. The foreign rocks are, without exception, the same as were reported in 1893 from localities lower down the valley, the different kinds holding the same relative proportions as at Horbury—Buttermere granophyre, Eskdale granites, Borrowdale andesites, Old rhyolites, and Yewdale breccia. As regards the Calder Valley, we may now note—(1) The erratics are, on the average, larger at Millwood and decrease in size as we descend the valley. (2) They are highly polished, and many retain their fine glacial striæ at this station; as we descend they lose their striæ and become more water-worn. (3) The mountain limestone boulders are best preserved at Millwood; they decrease in number, are more and more decomposed, and finally disappear in the lower reaches of the valley. (4) The rocks which characterise the Irish Sea glacier on the one hand, and the Tees glacier on the other, are conspicuous by their absence from the Calder Valley. (5) All the foreign rocks observed in this valley *may* have been brought from the Lakeland area south of a line drawn from Workington to Coniston, the ice-tongue bearing these being deflected eastward by lateral pressure of

the Irish Sea glacier. These observations all favour the conclusion that the stream of erratics entered the valley from the west.

The systematic exploration of the eastern area of the County has been continued by the members of the Hull Geological Society with excellent results. The situation and character of 2,070 boulders, all over one foot in diameter, have been carefully mapped and recorded from the Holderness coast alone. But the most valuable records, as bearing upon the ballast hypothesis, relate to the finding of boulders of rhomb-porphry along with other Norwegian rocks at no fewer than three inland stations away from the sea beach; (1) At Burstwick, six miles north-east of Hull, by Mr. Sheppard; (2) At Red Cliffe, six miles west of Hull; and (3) In a clay pit at the top of Bessingby Road, a mile and a half south of Bridlington Quay, by Mr. J. W. Stather, F.G.S., Honorary Secretary.

In response to a courteous invitation from the Council of the Yorkshire Geological and Polytechnic Society, this Committee devoted two days to the examination of the glacial moraines of York and Escrick. A full report drawn up by Mr. Percy F. Kendall, F.G.S., the leader of the excursion, will shortly be published.

The following reports received during the year have been accepted:—

Reported by Mr. J. BURTON, Horbury.

MILLWOOD, Todmorden.

I have seen the boulders here. One of Buttermere granophyre weighing 15 cwt. has been carted to some gentleman's estate. I found no rock differing from those collected at Horbury. The Buttermere granophyre, as in all other parts of the Calder Valley which I have examined, were the most abundant. Of course, by far the most of the boulders were local grits; many of them, both grits and granites were extra large, much bigger than any I have found either at Horbury or Mirfield.

MIRFIELD.

The exposure in the valley at Mirfield I have visited three times. At my first visit it was in a favourable condition for viewing. The drain, 26 ft. deep, lay open for some length with banks of material thrown out and exposed to view. There were some fine specimens of Borrowdale andesites and Eskdale granites, very smooth and well worn, not a sign of an angle about them. I brought samples of all the foreign boulders which I found; these are now in my possession. Their proportion was much greater than at Horbury. Among the boulders which I did not find at Horbury are some mountain limestone with encrinites, and one with *Producta*. At the lower end of

the drain I saw about twenty tons of boulders broken up for road-metal.

HORBURY. Morainic Ridge.

About half a mile down the valley from Broad Cut, from which point the river runs a little over a mile nearly due east, on the right natural bank, a low ridge, or a slight elevation of the ground commences, which leaves the river at an angle of about 45° and runs south-east for about a mile, when the land slopes down to the level of the valley, which at this place is a broad plain (80-100 ft. alt.), bounded on the south and south-east by high land (100-225 ft. alt.), in the form of a quarter of a circle, or rather an oval formed by the slopes of Sandal Castle and Milnthorpe. The ridge does not continue over this low land, but spreads out over the south side in a fan-shape. This ridge with its fan-shaped termination is composed of clay largely mixed with boulders from the size of a walnut to that of a cricket ball, ferruginous sand and fine gravel. There are a few boulders a foot in diameter. I have found granites. The ridge is from 300 to 400 yards wide, about 4 ft. thick in the middle, and thins out on both sides.

Reported by Mr. ROBERT LAW, F.G.S., Fennyroyd Hall, Hipperholme.

MILLWOOD.

An excavation for a gasometer tank at Millwood, Todmorden, cut through a bed of glacial drift of considerable thickness, which contains large quantities of foreign boulders, all more or less rounded, as well as the local stones with which they are associated, and varying in size from that of an egg to blocks weighing three-quarters of a ton. Some of the foreign stones have one or more flat sides, showing them to have been subjected to glacial action for a considerable time; they are well polished and very finely striated, the striæ running the longer axis of each stone. This deposit of gravel and boulders, situated on the north side of the Calder, and some 15 ft. above its bed, is about 17 ft. thick. It is thickest to the north, and thins out towards the south where the Yoredale shales dip into the hill. The proportion of foreign stones to that of local is about eight per cent., and there is no sign of stratification in the deposit. The interspaces between the boulders are filled in with mud and gravel. A very local patch of tough blue clay containing boulders was cut through in one part of the excavation. It had a resemblance to boulder clay, and was about 2 ft. thick. It occurred at the base of the cliff and rested on the decomposed Yoredale shale. Some of the larger boulders have been removed to the grounds of Mr. Wm. Ormerod, Todmorden. The following measurements were taken in situ:—

Grey quartz felsite ...	...	...	38 × 26 × 29"
Ennerdale granophyre ...	...	...	36 × 35 × 24"
" "	...	...	24 × 24 × 16"
" "	...	...	12 × 10 × 8"
Eskdale grey granite ...	...	...	28 × 10 × 8"
Eskdale red granite ...	...	...	10 × 6 × 6"
Buttermere granophyre ...	...	...	24 × 18 × 13"
" "	...	...	48 × 24 × 24"
" "	...	...	14 × 14 × 12"
Eskdale granite ...	...	...	24 × 18 × 18"
" "	...	...	18 × 18 × 12"
" "	...	...	10 × 6 × 6"
Borrowdale andesite ...	...	...	8 × 6 × 6"
" "	...	...	4 × 3 × 3"
Eurite ...	...	...	24 × 14 × 14"
Mica trap ...	...	...	4 × 3 × 2"

Reported by Mr. THOMAS SALTONSTALL, Sowerby.

LUDDENDEN FOOT.—Hand Carr, alt. 500 ft.

Pink rhyolite ...	...	...	8 × 6 × 4"
Eskdale granite ...	...	...	5 × 3 × 3'

SOWERBY.—Near to the Church, alt. 700 ft.

Pink rhyolite ...	...	...	5 × 4 × 4"
Quartzite ...	...	...	3 × 3 × 2"
Eskdale granite ...	...	...	3 × 2 × 2"
Ennerdale granophyre ...	...	...	3 × 2 × 2"

Snape Farm, Steep Lane, alt. 800 ft. :—

Old rhyolite ...	...	...	9 × 6 × 3"
Porphyrite ...	...	...	5 × 3 × 3"
Borrowdale andesite ...	...	...	3 × 2 × 2"

Boulder Clough, Cogging Lane, alt. 600 ft. :—

Eskdale granite ...	...	...	5 × 4 × 3"
Quartz felsite ...	...	...	4 × 4 × 2"

Many smaller ones, about $1\frac{1}{2} \times 1$ " have been collected.

Reported by Mr. W. GREGSON, F.G.S., Baldersby.

ROKEBY PARK.—N.R. of York, on the banks of the river Greta, near its junction with the Tees; alt. 430 ft. :—

Shap Fell granite, $36 \times 30 \times 16$ " subangular. No striæ; direction of longer axis N.W. and S.E., resting on the main limestone (Carboniferous).

Reported by Mr. T. CARTER MITCHELL, F.S.A., Topcliffe, Thirsk.

BALDESBY.—N.R. of York, in Holme Banks plantation; alt. 100 ft.

Carb. grey limestone ...	...	...	60 × 42 × 30"
" black "	...	...	54 × 48 × 45"
" siliceous "	...	...	24 × 24 × 20"

All lie in glacial deposits on a narrow terrace between the river and a high bank of New Red Sandstone.

Reported by Mr. E. HAWKESWORTH, Hunslet, Leeds.

SALTBURN.—N.R. of York, in bank of Mill-race to Marske Mill, which runs from the Skelton beck close to the Saltburn and Whitby Railway viaduct.

1	Shap Fell granite	...	51 × 36 × 30"	rounded.
2	"	"	24 × 20 × 18"	subangular.
3	"	"	48 × 30 × 24"	"
4	Basalt	...	22 × 14 × 13"	"

Nos. 2 and 4 are now in the bed of the stream.

Reported by Mr. T. SHEPPARD, Hull.

BURSTWICK.

Six miles north-east of Hull. A gravel-pit, underlying boulder clay, yielded the following varieties of boulders seldom exceeding a foot in diameter, and more or less water-worn:—

Chalk and flint (Belemnites), Lias limestone and Marlstone (*A. communis*, *Gryphæa*), Old rhyolites, Carb. limestone, Brockram, Quartz felsite (Armboth), Whinsill, Rhomb porphyry, Red granite (Norwegian?) Gneiss, Volcanic lava.

NOTE.—In the village of Burstwick are numerous boulders forming curbs, door-steps, etc. Several of these exceed a foot in diameter, and they are all well rounded. No doubt the greater part of them are from the gravel-pit. Among them are the following:—Basalt, very common, especially at the street corners; Carb. limestone with fossils, numerous; granites both pink and white varieties, frequently used as door-steps; Gneiss, one very large boulder a few yards from the village 'pub.'; Quartzite, several on roadside leading to the church; Old rhyolite, occasionally met with as curbs on roadside. A boulder of undoubted Norwegian origin—augite-syenite—was found in a field near Burstwick, at a recent excursion of the Hull Geological Society.

Reported by Mr. J. W. STATHER, F.G.S., Hon. Sec. Hull Geol. Soc.

MELTON.

About six miles west of Hull and south of the village of Melton, the bank of the Humber is formed for about a quarter of a mile by a low cliff of boulder clay locally known as Redcliff. The clay is full of boulders, including a huge percentage of far-travelled rocks. In my collection from this locality, Mr. Alf. Harker has recognised two Norwegian types, viz. the Augite-syenite (lausvikete of Brögger), and Rhomb porphyry, neither of which have been observed so far west before. Along with these we find Quartz porphyry and Brockram from the Vale of Eden, as well as other rocks waiting identification.

BESSINGBY.

In July last I obtained the Rhomb porphyry from a clay-pit at the top of Bessingby Road, about a mile and a half south of Bridlington Quay.

NOTE.—Here at Bessingby, and again by Mr. Sheppard at Burstwick, the Rhomb porphyry *has been found inland*.

BOULDERS NOTED ON THE HOLDERNESS COAST BETWEEN WITHERNSEA AND HORNSEA, 1895.

TABLE I.

BOULDERS OVER ONE FOOT IN DIAMETER.	A	B	C	D	E	F	G	H	I	J
	Withernsea to Sand-le-Mere. T. Sheppard and J. W. Stather. August 17th, 1895.	Sand-le-Mere to Tunstall. T. Sheppard and J. W. Stather. August 1895.	Tunstall to Hilston. W. H. Crofts and T. Shepherd. August 1895.	Hilstone to Thorp Garth. J. W. Stather. August 1895.	Thorp Garth to Aldborough. J. W. Stather. August 1895.	Aldborough to 1 Mile N. Members Hull Society. April 1895.	1 Mile N. of Aldborough to Mappleton. Hull Society. April 1895.	Mappleton to Hornsea. Hull Society. April 1895.		
ORIGIN.	3 Miles.	1 Mile.	1½ Miles.	3½ Miles.	½ Mile.	1 Mile.	2 Miles.	2½ Miles.	Totals.	Per Cent.
Carboniferous Limestone ..	38	103	24	25	57	197	36	54	534	25·3
Sandstone Grits, etc., } chiefly Carboniferous }	12	49	19	13	17	85	33	47	275	13·3
Mesozoic Rocks. {										
{ Lias Shale ..	4	38	37	19	58	121	34	34	345	} 30·8
	3	8	8	3	11	80	46	28	187	
	2	5	21	5	14	26	12	19	104	
Basalts and other eruptive } rocks. }	16	64	31	25	74	285	23	36	554	26·7
Granite, Schist, Gneiss, etc...	7	7	4	5	9	30	2	7	71	3·4
TOTALS	82	274	144	95	240	824	186	225	2070	100·0

I. The above is a rough classification of 2,070 boulders (above a foot in diameter), noted on the Holderness coast between Withernsea and Hornsea, a distance of 14 miles, during the summer of 1895.

Naturalist,

II. All the boulders tabulated in sections A, B, C, D, E, G, H, in above table, were in situ in the clay, or were close to the boulder-clay cliff from whence they were recently fallen. In section F, however, a large group of boulders occurred at about 'half-tide,' and these are included in the Table.

III. Table I. gives the actual number of boulders noted in the different sections of coast. Table II. gives the percentage of the different classes of the rocks.

IV. The largest boulder seen was a block of carboniferous limestone on the beach near Mappleton, 85 in. $\times$ 31 in. $\times$ 30 in. + and many others approaching this size.

A block of garnetiferous schist was noted at base of cliff near Cowden, 22 in. $\times$ 30 in. $\times$ 13 in.

TABLE II.

BOULDERS OVER ONE FOOT IN DIAMETER.	A	B	C	D	E	F	G	H
	Withernsea to Sand-le-Mere.	Sand-le-Mere to Tunstall.	Tunstall to Hilstone.	Hilstone to Thorp Garth.	Thorp Garth to Aldborough.	Aldborough to 1 Mile N.	1 Mile N. of Aldborough to Mappleton.	Mappleton to Hornsea.
	3 Miles.	1 Mile.	1½ Miles.	3¼ Miles.	½ Mile.	1 Mile.	2 Miles.	2½ Miles.
ORIGIN.	PerCent.	PerCent.	PerCent.	PerCent.	PerCent.	PerCent.	PerCent.	PerCent.
Carboniferous Limestone, } including possibly a few other Palæozoic Sedimentary Rocks. }	46·4	37·6	16·7	26·3	23·8	23·9	19·4	24
Sandstones, Grits, etc., } probably all from Car- boniferous or other Palæozoic Rocks. }	14·6	17·9	13·2	13·7	7·1	10·3	17·7	20·9
Mesozoic Rocks (Jurassic Limestones and Sand- stones, Chalk, etc.). }	11	18·6	45·8	28·4	34·6	27·6	49·4	36
Basaltic and other Erup- tive Rocks. }	19·5	23·4	21·5	26·4	30·8	34·6	12·4	16
Granite, Schist, Gneiss, etc.	8·5	2·5	2·8	5·2	3·7	3·6	1·1	3·1
	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

NOTE—MOLLUSCA.

Tectura testudinalis on the Yorkshire Coast.—With regard to Mrs. Brierley's note in the 'Naturalist' for July, p. 200, she will be interested to know that I have taken it living at Gristhorpe, Filey and Flamborough, in the last two places in abundance. I have not kept records of the dates, but I have collected at intervals on the Yorkshire coast for the last eleven or twelve years. I am inclined to think that it would have been recorded oftener if collectors had taken advantage of extreme low tides, as I believe it does not occur *as a rule* above the laminarian zone, i.e. in any quantity.—J. DARKER BUTTERELL, Willow Grove, Beverley, July 5th, 1895.

NOTES—COLEOPTERA.

A Swarm of *Ocypus olens* (ante, p. 301).—This is by no means as uncommon as Mr. Hawkesworth supposes. For several seasons in succession I have observed the same thing at Scarborough, the favoured locality being the north side of the Castle Hill. Although the life-history of the insects contained in the order Coleoptera is not so fully known as is that of the Lepidoptera, we know that many species reach the perfect stage in from August—October and almost immediately go into hybernation until the coming spring. This explains the simultaneous appearance of so many examples of the same species during the period named.—E. G. BAYFORD, 2, Rockingham Street, Barnsley, 10th Nov., 1895.

***Hydroporus celatus* : An Addition to the Yorkshire Fauna.**—I am glad to be able to add yet another species to the long list of *Hydropori* found in Yorkshire. One fine day last spring I took some small black *Hydropori* in a tiny rill that trickled down the broad peaty slope of Maw Rigg, a few miles north of Langdale End. I did not examine them critically till last month, when I found among them three examples of *Hydroporus celatus* Clark (= *longulus* Muls.). They were in company with *H. nigrita*, which they somewhat closely resemble, but their form is longer, and the antennæ are of a much clearer red colour. As I had not met with the species before (though I felt little doubt on the subject), I sent them to Dr. Sharp, who at once confirmed my identification.—W. C. HEY, Derwent House, West Ayton, York, October 1895.

NOTES AND NEWS.

An old and well-known Yorkshire naturalist passed away on the 22nd of Sept. in the person of Mr. Charles Sheard, of Ovenden, one of the original founders of the Naturalists' Society of that village. He did not take up the study of natural history till he was 50 years of age, but from that time down to the date of his death at the age of 83 he was well-versed in various branches. He was more particularly an enthusiastic botanist, familiar with the wild plants of his neighbourhood, but he was also a real lover of nature in its broadest aspect, well acquainted with the birds which came under his daily observation, and taking besides keen delight in other branches. He died at Mason Green, Ovenden, in the same house in which he was born and had lived all his life.

We regret to record the death of the Rev. W. Thompson, who died at his residence, Guldrey Lodge, Sedbergh, after a very short illness, on June 6th. A native of Westmorland, he was born at Mallerstang in 1843, and entered Sedbergh School in 1857. From the school he went to Queen's College, Oxford, having gained a Hastings Exhibition. Here he took Classical Honours. He was afterwards curate at Tunbridge Wells, at Cautley and at Sedbergh. In 1875 he acted as temporary headmaster to Sedbergh School, and in 1885 he was appointed a J.P. for the West Riding. His own hobbies were botany, architecture and archæology. His '*Florula Sedbergensis*' is out of print; but the results are included in the appendix to '*West Yorkshire*.' Those who attended the Sedbergh meetings in 1887 and 1894 had the advantage of his personal guidance. More recent works are '*Sedbergh, Garsdale and Dent*' and '*A Guide to Sedbergh*.'—H. R.

CLASSIFIED INDEX.

CONTRIBUTORS.

- Adams, Lionel E., B.A., M.C.S., 141.
 Archer, H. T., 94, 327.
 Armitt, Miss Mary L., 224, 302.
 Ash, Rev. Cyril D., B.A., 83, 235, 312.
 Bailey, Matthew, 106, 106, 171, 312, 312.
 Baker, John Gilbert, F.R.S., F.L.S., 307.
 Baker, Walter F., F.E.S., 146.
 Barker, Reginald H., 307.
 Bayford, E. G., 52, 272, 346.
 Beeby, W. H., F.L.S., F.R.M.S., 307.
 Bennett, Arthur, F.L.S., 271.
 Blakey, T. H., 147.
 Booth, H. B., 94, 94, 149.
 Braim, John, 205.
 Brierley, Mrs. E., 200.
 Brown, W. C., 237.
 Burton, F. M., F.L.S., F.G.S., 273, 313.
 Burton, J., 340.
 Butterell, J. Darker, 187, 346.
 Carr, Prof. J. W., M.A., F.L.S., 328.
 Carter, John Wm., 28.
 Carter, Rev. W. Lower, M.A., F.G.S., 111.
 Clarke, Wm. Jas., 327, 327. [211.
 Cole, Rev. Edward Maule, M.A., F.G.S.,
 Cordeaux, John, M.B.O.U., 1, 117, 179,
 232, 317.
 Crawshaw, Rev. Charles, M.C.S., 260.
 Crosland, F., 338.
 Crossland, Charles, 81, 236. [337.
 Crowther, Henry, F.R.M.S., 14, 22, 80, 332.
 Fierke, F. W., M.C.S., 131, 179, 234.
 Fortune, Riley, F.Z.S., 62, 108, 224. [328.
 Fowler, Rev. Wm., M.A., 238, 242, 242,
 Friend, Rev. Hilderic, 238, 238, 242.
 Gardner, John, F.E.S., 52, 52.
 George, C. F., M.R.C.S., 187.
 Gibbs, T., 7, 51.
 Goulding, R. W., 315.
 Grabham, Oxley, M.A., M.B.O.U., 177, 242.
 Gregson, Wm., F.G.S., 342.
 Grimshaw, Percy H., F.E.S., 171.
 Gurney, John Henry, F.Z.S., M.B.O.U., 311.
 Hall, A. E., F.E.S., 207, 235.
 Hawell, Rev. John, M.A., 106.
 Hawkesworth, Edwin, 342.
 Hawkesworth, Leonard, 301.
 Hawkins, J., 109, 206. [327.
 Haworth-Booth, Lieut.-Col. B. B., 302,
 Hewett, William, 6, 6, 6, 146.
 Hey, Rev. W. C., M.A., M.C.S. 28, 52,
 106, 181, 200, 207, 242, 269, 346.
 Hobkirk, Charles P., F.L.S., 180.
 Hodgson, Wm., A.L.S., 27, 51, 332, 336.
 Howarth, Elijah, F.R.A.S., 254.
 Ingham, Wm., B.A., 307.
 Jukes-Brown, A. J., B.A., F.G.S., Coloured
 Sketch Map of the Soils of Lincolnshire,
 between pp. 288-289.
 Keegan, P. Q., LL.D., 23.
 Kendall, Percy F., F.G.S., 94.
 Larder, J., 212, 315.
 Law, Robert, F.G.S., 341.
 Leach, R. E., M.A., F.L.S., 224.
 Lees, F. Arnold, M.R.C.S., 225, 239.
 Martindale, Joseph A., 200, 310.
 Mason, James Eardley, 213, 218.
 Meade, R. H., 220, 338.
 Miller, Rev. J. K., 159.
 Mitchell, T. Carter, F.S.A., 342.
 Neale, Joseph, B.A., 110.
 Nelson, T. H., M.B.O.U., 94.
 Oldham, Charles, M.C.S., 6, 6, 219, 310,
 328, 328, 336.
 Pawson, Albert H., 109, 147, 208.
 Peacock, Rev. F. A. Woodruffe, 95, 159,
 201, 229, 232, 289, 313, 325, 332.
 Petty, S. Lister, 53, 133, 150, 261, 310,
 326.
 Pickard-Cambridge, Rev. Fredk. O., 29.
 Porritt, George T., F.L.S., F.E.S., 80, 80,
 336.
 Potter, E. G., 150.
 Roebuck, Wm. Denison, F.L.S., 18, 49, 69,
 107, 125, 151, 173, 189, 203, 221, 243,
 Rotheray, Lister, 303. [281.
 Saltonstall, Thomas, 342.
 Sheppard, T., 342.
 Shuffrey, Rev. W. A., M.A., 270, 307.
 Slater, Matthew B., F.L.S., 148, 209.
 Smith, J. Charles, 307.
 Snelgrove, E., B.A., 7.
 Soppitt, Henry T., 148, 309.
 Spiers, Rev. Wm., M.A., 82.
 Stather, J. W., F.G.S., 342.
 Stiles, M. H., 62, 115.
 Tate, Thomas, F.G.S., 148, 339.
 Thornley, Rev. Alfred, M.A., F.L.S., F.E.S.,
 235.
 Turner, W. Barwell, F.R.M.S., 150.
 West, Wm., jun., 270, 333.
 Whitlock, F. B., 63, 302, 329.
 Whitwell, Wm., F.L.S., 132, 257.
 Wilkinson, Johnson, M.B.O.U., 238, 238,
 308.
 Wolstenholme, C. D., 146.
 Wroot, Herbert E., 183.

BOOK NOTICES.

- Allnutt, Henry.—The Footpath Manual, 328.
- Anderson, Knud.—Occurrence of *Diomedea melanophrys* in the Færøe Islands, 308.
- Baker, J. G. and E. G.—The Botany of High Cup Nick, Westmorland, 17.
- Barrett, C. G.—The Lepidoptera of the British Islands, vol. 2, 316.
- Cooke, John H.—Occurrence of *Phoca rugosidens* in Maltese Strata, 218.
- Cooke, M. C.—Edible and Poisonous Mushrooms, 81.
- Coombe, J. Newton.—The Reproduction of the Diatomaceæ, 260.
- Davy, J. Burtt.—Transcripts of some Descriptions of Californian Genera and Species, 144.
- Fisher, Robert.—Flamborough, Village and Headland, 112.
- Grimshaw, Percy H.—Occurrence in Ross-shire of *Cephenomyia rufibarbis*, a new British Bot-fly parasitic on the Red Deer, 308.
- Hanbury, F. J.—London Catalogue of British Plants, 9th edition, 201, 239.
- Hayward, Jane Mary.—Bird Notes, 116.
- Headley, F. W.—The Structure and Life of Birds, 337.
- Hick, Thomas.—On the Structure of the Leaves of Calamites, 237.
- Hick, Thomas.—On *Kaloxylon Hookeri*, Will., and *Lyginodendron Oldhamium*, Will., 237.
- Hoyle, W. E.—Catalogue of Library of Manchester Museum, 316.
- Hoyle, W. E.—Report of the Manchester Museum, 132.
- Hull Geological Society.—Transactions, part 1, 82.
- Jeffs, Osmund W.—Notes on a Series of Fossil Footprints from Storeton, in Cheshire, 132.
- Liverpool Biological Society.—Proc. and Trans., vols. 5, 6, 7, 8, 1890-1894, 254.
- Lund, Percy, & Co.—The Practical Photographer for April 1895, 316.
- Malton Nat. Society.—Naturalist Notes, 172.
- Massee, George.—British Fungus-Flora, vol. 4, 309.
- Massee, George.—A Revision of the Genus *Cordyceps*, 202.
- Massee, George.—Note on the Disease of Cabbages, etc., called Finger and Toe, 188.
- Natural Science.—Special 'Challenger' Number, 316.
- Newton, Alfred.—Dictionary of Birds, part 3, 1894, 61.
- Nottingham Nat. Society.—Annual Report and Transactions for 1894, 308.
- Roper, Frank.—The Missing Link, Consul, the Remarkable Chimpanzee at Manchester, 308.
- Snelgrove, Edward, B.A.—Object Lessons in Botany, Book II., 280.
- Southport Society of Natural Science.—2nd Report, 187.
- Swann, H. K.—Nature in Acadie, 328.
- Taylor, John W.—Monograph of Land and Freshwater Mollusca of British Isles, part 1, Oct. 1894, 14-17.
- Tutt, J. W.—Rambles in Alpine Valleys, 242.
- Wager, Harold.—On the Presence of Centrospheres in Fungi, 17.
- Waite, Edgar R.—New or Rare Fishes from Maroubra, N.S.W., 144.
- Warrington Lit. and Phil. Society.—Proceedings, 1894-95, 218.
- Watson, Arnold J.—Tube-Forming Habits of *Panthalis cærstedii*, 202.
- Watson, John.—Farm Vermin, 116.
- York School Nat. Hist. Society.—61st Annual Report, 1894, 172.

ILLUSTRATIONS.

- Anodonta anatina* var. *radiata*, Yorkshire, 15.
- Dreissena polymorpha*—muscular scars, 16.
- Gull Flying, Isle of Man, 316.
- Helix granulata*, 15.
- Helix lapicida*, Bristol, 17.
- Helix pulchella*, Berks, 16.
- Hyalinia lucida*, Devon, 16.
- Map of Broughton Woods and District, 229.
- Map of Ferrybridge District, 107.
- Map of Hole of Horcum District, 204.
- Map of Knaresborough District, 145.
- Soils and Natural History Divisions of Lincolnshire, separate double-page Coloured Sketch Map, to be inserted between pp. 288 and 289.
- Unio pictorum*, Notts, 16.
- Twigmoor Gullery, a View in, 231.

CHESHIRE.

Algæ : Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892, Id., 173-176.

Cœlenterata : Bibliography, 1884-1892, W. Denison Roebuck, 151-158.

Fungi : Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Mammalia : Daubenton's Bat near Romiley, C. Oldham, 310; Porpoise in the Mersey at Latchford, C. Oldham, 328.

Mollusca : Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.

Mosses and Hepatics : Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Museums : 'Blue-john' Window in the Vernon Museum, 105.

Protozoa : Bibliography, 1884-1892, W. Denison Roebuck, 18-22.

Reptiles : Palmated Newt in Cheshire, C. Oldham, 219.

Vermes : Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

CUMBERLAND.

Algæ : Bibliography of Freshwater Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892, Id., 173-176.

Arachnida : A List of the Araneidea of Cumberland and the Lake District, Rev. F. O. Pickard-Cambridge, 29-48.

Birds : Sparrows Hawking for Crane-flies, H. Crowther, 80; Range of the Nightjar and Buzzard in the Lake District, Hilderic Friend, 238; *Muscicapa atricapilla* in Lakeland, Mary L. Armitt, 302; the Night-jar in Cumberland, W. Hodgson, 332.

Cœlenterata : Bibliography, 1884-1892, W. Denison Roebuck, 151-158.

Flowering Plants : Notes on the Chemical Analysis of certain Lake District Rosaceæ, P. Q. Keegan, 23-27; Singular Discovery of *Sisyrinchium angustifolium* in Cumberland, W. Hodgson, 27; *Stellaria aquatica* and *S. nemorum* in Cumberland, W. Hodgson, 51; *Turritis glabra*, etc., in the Lake District, Hilderic Friend, 238; *Andromeda polifolia* at Newton Moss near Penrith, J. C. Smith, 307; *Carex paludosa* at Cockbridge, W. Hodgson, 336.

Fungi : Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Geology : Slight Geological Sketch of the Lake District, prefixed to list of Spiders, Rev. F. O. Pickard-Cambridge, 30-33.

Lichens : Bibliography, 1888-1893, W. Denison Roebuck, 221-224; *Umbilicaria pustulata* near Keswick, J. A. Martindale, 310.

Mammalia : Hedgehog at Lorton, Hilderic Friend, 242; Hedgehogs in the Lake District, S. Lister Petty, 310; J. W. Carr, 328; Hedgehog at Lorton, W. Hodgson, 336.

Mollusca : Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.

Mosses and Hepatics : Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Orthoptera : Bibliography, 1884-1892, W. Denison Roebuck, 49-51.

Personal Notice : Death of John Hagger, F.L.S., 116.

Vermes : Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

DERBYSHIRE.

Algæ : Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131.

Flowering Plants : Botanical Notes from the Sheffield District, T. Gibbs and E. Snelgrove, 7-13; *Viola hirta* and *V. palustris* near Sheffield, erratum, T. Gibbs.

Fungi : Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Mammalia : The Mammals of the Ashbourne District of Derbyshire, L. E. Adams, 141-144; Whiskered Bat at

Cromford, C. Oldham, 328; the Otter in the Mid-Trent Valley and its Tributaries, F. B. Whitlock, 329-332.

Mosses and Hepatics : Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Personal : John Tym as donor of a 'Blue-john' Window to Vernon Park Museum, Stockport, 105; death of John Hagger, F.L.S., of Repton School, 116; F. W. G. Payne and his catalogue of Macro-Lepidoptera of Derbyshire, 188.

DURHAM.

- Algæ**: Bibliography of Freshwater Algæ, 1888-1892, W. Denison Roebuck, 123-131.
Coelenterata: Bibliography, 1884-1892, W. Denison Roebuck, 151-158.
Coleoptera: *Monochamus sutor* and other Timber-imported Beetles at Hartlepool, J. Gardner, 52.
Flowering Plants: Absence of *Polemonium* from the Durham portion of Upper Teesdale, J. G. and E. G. Baker, 17; and of *Alchemilla alpina* from Durham, P. Q. Keegan, 24; *Viola rupestris* Schmidt., at Widdy Bank, 241.
Fungi: Bibliography, 1888-1893, W. Denison Roebuck, 243-254.
Hymenoptera: *Sirex juvencus* at Hartlepool, J. Gardner, 52.

- Lichens**: Bibliography, 1888-1893, W. Denison Roebuck, 221-224.
Mollusca: Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.
Mosses and Hepatics: Bibliography, 1888-1894, W. Denison Roebuck, 281-288.
Orthoptera: Bibliography, 1884-1892, W. Denison Roebuck, 49-51.
Personal Notices: Paper by A. C. Chapman on the Ornithology of West Jutland, Denmark, 188.
Protozoa: Bibliography, 1884-1892, W. Denison Roebuck, 18-22.
Societies: Toynbee N. H. Society in camp in Upper Teesdale, 308.
Vermes: Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

LANCASHIRE.

- Algæ**: Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892, Id., 173-176.
Birds: Grey Phalarope on the Coast at Southport, C. Oldham, 6.
Coelenterata: Bibliography, 1884-1892, W. Denison Roebuck, 151-158.
Diptera: Occurrence of *Cynomyia alpina* at Silverdale, R. H. Meade, 338.
Flowering Plants: Occurrence of *Sonchus arvensis* var. *angustifolia* at Blundell-sands, W. Whitwell, 132.
Fungi: Bibliography, 1888-1893, W. Denison Roebuck, 243-254.
Lepidoptera: *Cosmia paleacea* (*Euperia fulvago*) in South Lancashire, C. Oldham, 336.
Lichens: Bibliography, 1888-1893, W. Denison Roebuck, 221-224.
Mammalia: Whiskered Bat near Morecambe, C. Oldham, 6; Porpoise in the Mersey at Latchford, C. Oldham, 328.
Mollusca: Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.
Mosses and Hepatics: Bibliography, 1888-1894, W. Denison Roebuck, 281-288.
Museums: Report of Manchester Museum, 132; Review of Roper's book on The

- Missing Link, Consul, the Chimpanzee of the Manchester Zoological Gardens, 308; Review of Hoyle's Catalogue of Manchester Museum Library, 316.
Orthoptera: Bibliography, 1884-1892, W. Denison Roebuck, 49-51.
Personal Notices: Decease of Dr. Joseph Bancroft at Brisbane, 27; Herbert Massey and B. H. Crabtree elected F.E.S., 111; death of A. E. Lomax, of Liverpool, 132; death of the wife of T. Mellard Reade, 149; W. H. Heathcote elected F.L.S., 172; W. E. Hoyle's Catalogue of Library of Manchester Museum, 316.
Protozoa: Bibliography, 1884-1892, W. Denison Roebuck, 18-22.
Societies: Current programme of Manchester Microscopical Society, 105; notice of Second Report of Southport Society of Natural Science, 187; notice of Proceedings of Warrington Literary and Philosophical Society for 1894-1895, 218; review of Proceedings and Transactions of Liverpool Biological Society, 254-256; Geography, the new periodical of the Manchester Geographical Society, 308.
Vermes: Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

LINCOLNSHIRE.

- Agriculture**: Lincolnshire Agriculture One Hundred Years Ago, John Cordeaux, 317-326.
Algæ: Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892,

- Id., 173-176; *Volvox globator* at Manton Common, W. C. Brown, 237; Fresh-water Algæ observed by L. N. U. at Sleaford, J. Larder, 315.
Birds: Bird-notes from the Humber District in the Autumn of 1894, John

LINCOLNSHIRE—*continued.*

- Cordeaux, 1-6; Bird-notes from the Humber District in the Winter of 1894-5, *Id.*, 117-122; Occurrence of the Water Pipit in North Lincolnshire, an addition to the Avifauna of the Humber District, John Cordeaux, 179; Yellow Wagtail and Green Woodpecker at Kirton-in-Lindsey, C. F. George, 187; Twigmoor Gullery, illustrated, 231; Birds observed by Y. N. U. and L. N. U. in Broughton Woods, John Cordeaux, 232; Birds formerly in the Lincolnshire Fens, F. M. Burton, 278; Large Birds of Prey in Lincolnshire, F. B. Whitlock, 302; Birds of Prey in Lincolnshire in 1799, John Cordeaux, 319; Grey Goose and Great Bustard also, 320.
- Cœlenterata**: Bibliography, 1884-1892, W. Denison Roebuck, 151-158.
- Coleoptera**: Beetles observed by Y. N. U. and L. N. U. in Broughton Woods, A. Thornley, 235-236.
- Ferns**: Ferns of Walkeringham neighbourhood, J. K. Miller, 171; Ferns observed by Y. N. U. and L. N. U. in Broughton Woods, E. A. W. Peacock, 234; Ferns in East Fen in 1799, E. A. Woodruffe-Peacock, 326.
- Fishes**: Pike at Twigmoor Gullery, E. A. W. Peacock, 231; Eels and Pike in the Fens, F. M. Burton, 279; Abundance of Sticklebacks and Pike in the East Fen in 1799, John Cordeaux, 320.
- Flowering Plants**: A Critical Catalogue of Lincolnshire Plants from all known sources, sixth paper, E. A. Woodruffe-Peacock, 95-102; the Rarer Plants of the Walkeringham neighbourhood in Notts, Lincolnshire, and Yorkshire, J. K. Miller, ed. E. A. Woodruffe-Peacock, 159-171; a Lowland Sand-loving Gentian, F. Arnold Lees, 225-228; embedded forests of oak, yew, hazel, birch, in the Ancholme Valley, E. A. Woodruffe-Peacock, 230; plants observed by Y. N. U. and L. N. U. in Broughton Woods, E. A. W. Peacock, 232-234; and by L. N. U. at Sleaford, *Id.*, 314-315; Luxuriance of Weeds in Lincolnshire in 1799, John Cordeaux, 319-321; Cranberries in the East Fen in 1799, *Id.*, 320; Plants of East Fen, same date, *Id.*, 320; and E. A. Woodruffe-Peacock, 325-326.
- Fungi**: Bibliography, 1888-1893, W. Denison Roebuck, 243-254; *Lycoperdon stellatum* and *Morchella esculenta* near Gainsborough, J. K. Miller, 171; *Panus rudis* at Louth, new to Britain, J. Larder, 212; Fungi observed by Y. N. U. and L. N. U. in Broughton Woods, C. Crossland, 236; *Spongiospora solani* at Appleby, on Cornbrash, W. C. Brown, 237; a Dozen New Lincolnshire Fungi, W. Fowler, 328.
- Geology**: Geological Observations in the Broughton Woods district, E. A. Woodruffe-Peacock, 230; the Story of the Lincoln Gap, F. M. Burton, 273-280; Explanation of Sketch Soil Map, E. A. Woodruffe-Peacock, 291; Geological Observations of L. N. U. at Sleaford, F. M. Burton, 313.
- Hemiptera**: Further Additions to the List of some Hemiptera-Heteroptera of Lincolnshire, J. Eardley Mason, 213-218; Hemiptera-Homoptera of Alford District, *Id.*, 218.
- Lepidoptera**: Lepidoptera observed by Y. N. U. and L. N. U. in Broughton Woods, A. E. Hall, C. D. Ash, 235; *Hipparchia megæra* at Sleaford, R. W. Goulding, 315.
- Mammalia**: Rabbit-Warrens in Lincolnshire in 1799, John Cordeaux, 318-319; Mouse-Pest in Deeping Fen in 1799, *Id.*, 321.
- Mollusca**: Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200; Mollusca observed by Y. N. U. and L. N. U. in Broughton Woods, F. W. Fierke, 234-235; Fossil Remains of *Cardium edule*, *Mytilus edulis* and *Littorina littorea* at Newland, Lincoln Cliff, F. M. Burton, 280; Mollusca observed by L. N. U. at Sleaford, *Id.*, 313.
- Mosses and Hepatics**: Bibliography, 1888-1894, W. Denison Roebuck, 281-288.
- Natural History Divisions of the County**: Article by E. A. Woodruffe-Peacock, 289-292, with Alphabetical Directory of Place-names, 293-301; illustrated by Coloured Sketch-Map, double-page, between pp. 288 and 289.
- Orthoptera**: Bibliography, 1884-1892, W. Denison Roebuck, 49-51.
- Personal Notices**: Canon Fowler re-elected Hon. Sec. Ent. Soc. London, 68; paper by J. Burt Davy on Californian Plants, 144; Lieut. W. W. Cordeaux and his notes on birds observed in Dras and Suru, India, 188; list by W. D. Carr of the lepidoptera of Lincoln, 188; paper by John H. Cooke on the Occurrence of *Phoca rugosidens* in Maltese strata, 218.

LINCOLNSHIRE—*continued*.

Prehistoric Archæology: Flint Implements found at Broughton Woods, J. Cordeaux, 230.

Protozoa: Bibliography, 1884-1892, W. Denison Roebuck, 18-22.

Societies: The Yorkshire and Lincolnshire Naturalists' Unions at Broughton Wood and Twigmoor Gullery, E. A. Woodruffe-

Peacock, 229-237; Linc. N. U. at Sleaford, Id., 3.

Soils: Coloured Sketch Map of Soils, A. J. Jukes-Brown, double-page map between pp. 288-289; explanatory article, E. A. Woodruffe-Peacock, 291-292.

Vermes: Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

ISLE OF MAN.

Algæ: Bibliography of Marine Algæ, 1888-1892, W. Denison Roebuck, 173-176.

Coelenterata: Bibliography, 1884-1892, W. Denison Roebuck, 151-158.

Fungi: Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Geology: Forthcoming appearance of P. F. Kendall's paper on the glacial geology of the Island, 17; the geological surveys by W. Boyd Dawkins and G. W. Lamplugh, 68.

Lichens: Bibliography, 1888-1893, W. Denison Roebuck, 221-224.

Mammalia: Whale at Maughold, W. Spiers, 82.

Mollusca: Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.

Mosses and Hepatics: Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Orthoptera: Bibliography, 1884-1892, W. Denison Roebuck, 49-51.

Protozoa: Bibliography, 1884-1892, W. Denison Roebuck, 18-22.

Vermes: Bibliography, 1884-1892, W. Denison Roebuck, 69-80; notice of paper by A. T. Watson on Tube-forming Habits of *Panthalis cœrstedii* from Manx seas, 202.

NORTHUMBERLAND.

Algæ: Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892, Id., 173-176.

Arachnida: Bibliographical notes on the Spiders of Cheviotland, Rev. F. O. Pickard-Cambridge, 29-30; list of Cheviotland Spiders which have not occurred in the Lake District, Id., 47-48.

Birds: Bird-notes made on the moors near Bonnie Rigg Hall, John Cordeaux, 4; Little Auks on the Northern Coast, H. T. Archer, 94; Original of Bewick's figure of Common (not Spotted) Sandpiper shot at Bellingham, J. H. Gurney, 311; Food of Little Auk, H. T. Archer, 327.

Coelenterata: Bibliography, 1884-1892, W. Denison Roebuck, 151-158.

Coleoptera: *Agabus tarsatus* at Long Benton, M. L. Thompson, 104.

Flowering Plants: Bog-plants on the moors near Bonnie Rigg Hall, John Cordeaux, 4; Absence of *Alchemilla alpina* from the county, P. Q. Keegan, 24.

Fungi: Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Lichens: Bibliography, 1888-1893, W. Denison Roebuck, 221-224.

Mollusca: Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.

Mosses and Hepatics: Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Museum: Acquisition of a Lion by the Newcastle Museum, 180.

Orthoptera: Bibliography, 1884-1892, W. Denison Roebuck, 49-51.

Vermes: Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

NOTTINGHAMSHIRE.

Algæ: Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131.

Birds: Bird-notes from the Mid-Trent Valley for 1894, F. B. Whitlock, 63-68.

Ferns: Ferns of Walkeringham neighbourhood, J. K. Miller, 171.

Flowering Plants: Botanical Notes from Cresswell Crag, T. Gibbs and E. Snelgrove, 7-13; the Rarer Plants of the Walkeringham neighbourhood in Notts, Lincolnshire, and Yorkshire, J. K. Miller, ed. E. A. Woodruffe-Peacock, 159-171.

NOTTINGHAMSHIRE—*continued.*

Fungi : Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Geology : The Story of the Lincoln Gap, F. M. Burton, 273-280.

Mammalia : Hedgehogs in Notts, J. W. Carr, 328; the Otter in the Mid-Trent Valley and its Tributaries, F. B. Whitlock, 329-332.

Mollusca : Figure of *Unio pictorum* from Clumber Lake, 16.

Mosses and Hepatics : Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Personal Notices : Decease of Dr. Joseph Bancroft at Brisbane, 27; Rev. J. K. Miller and his botanical collections made around Walkeringham, 159-160; Rev. A. Thornley and Prof. J. W. Carr elected F.L.S., 172; H. J. Pearson's Ornithological trip to Norway, 172.

Societies : Notice of Annual Report and Transactions of Nottingham Naturalists' Society for 1894, 308.

Vermes : Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

WESTMORLAND AND FURNESS.

Algæ : Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892, Id., 173-176; Notes on certain Algæ at Greenodd, W. Barwell Turner, 150.

Arachnida : A List of the Araneidea of Cumberland and the Lake District, Rev. F. O. Pickard-Cambridge, 29-48.

Birds : Raven and Peregrine Nesting in Westmorland, R. E. Leach, 224; Redstarts in Lakeland, Mary L. Armitt, 224; *Muscicapa atricapilla* in Lakeland, Id., 302.

Cœlenterata : Bibliography, 1884-1892, W. Denison Roebuck, 151-158.

Diptera : Occurrence of two Early and Rare Diptera at Grange, R. H. Meade, 220.

Flowering Plants : Notice of J. G. and E. G. Baker's paper on the botany of High Cup Nick, 17; Notes on the Chemical Analysis of certain Lake District Rosacæ, P. Q. Keegan, 23-27; The Constituents of the North Lancashire Flora, 1597 (?) - 1893, Lister Petty, 53-60, 133-140, 261-268; Bekansgill, a place-

name of Botanical Derivation, L. Petty, 82; John Hawell, 106; and L. Petty, 150; *Vicia orobus* and *Lemna trisulca* in Westmorland, J. A. Martindale, 200; New Records for North Lancashire, 1894, S. Lister Petty, 326.

Fungi : Bibliography, 1888-1893, W. Denison Roebuck, 243-254.

Geology : Slight Geological Sketch of the Lake District, prefixed to list of Spiders, Rev. F. O. Pickard-Cambridge, 30-33.

Lichens : Bibliography, 1888-1893, W. Denison Roebuck, 221-224; *Umbilicaria pustulata* in Westmorland, J. A. Martindale, 310.

Mammalia : Hedgehogs in the Lake District, S. Lister Petty, 310.

Mollusca : Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200.

Mosses and Hepatics : Bibliography, 1888-1894, W. Denison Roebuck, 281-288.

Vermes : Bibliography, 1884-1892, W. Denison Roebuck, 69-80.

YORKSHIRE.

Algæ : Bibliography of Fresh-water Algæ, 1888-1892, W. Denison Roebuck, 123-131; and of Marine Algæ, 1888-1892, Id., 173-176; Provisional List of 32 Diatoms found at Cusworth, near Doncaster, M. H. Stiles, 62; Notes on certain Algæ, W. Barwell Turner, 150.

Birds : Bird-notes from the Humber District in the autumn of 1894, John Cordeaux, 1-6; Nesting of Woodcock near Bradford in 1894, W. Hewett, 6; Nesting of Hawfinch in Bolton Woods, Id., 6; Nesting of Turtle Dove near Skipwith in 1894, Id., 6; Grouse and the storm at Harrogate, R. Fortune, 62; Sparrows hawking for Crane-flies at

Leeds, H. Crowther, 80; Little Auks at Redcar, T. H. Nelson, 94; near Bradford, H. B. Booth; and in Leeds, P. F. Kendall, 94; Breeding of Woodcock near Bradford in 1894, H. B. Booth, 94; Flamborough Bird-notes, Matthew Bailey, 106, 171, 312, 312; Birds observed by Y. N. U. at Ferrybridge, R. Fortune, 108-109; Bird-notes from the Humber District in the Winter of 1894-95, John Cordeaux, 117-122; Chiffchaff and Jay noted by Y. N. U. at Knaresborough, H. B. Booth, 149; Eggs of the Lesser Tern at Spurn, E. G. Potter, 150; Arrival of Spring and Summer Migrants at Flamborough,

YORKSHIRE—*continued*.

M. Bailey, 171; Moorland birds near Langdale Rigg, W. C. Hey, 181-182; Note on protection of Eggs at Spurn for five years, 188; Birds observed by Y. N. U. in Upper Newtondale, John Braim, 205-206; Occurrence of Green-shank and Nesting of Woodcock in the Washburn Valley, R. Fortune, 224; Red-legged Partridge near Huddersfield, J. Wilkinson, 238; Great Skua at Scarborough, Id., 238, 308; East Yorkshire Bird-notes, B. B. Haworth-Booth, 302; Supposed Occurrence of the Spotted Sandpiper in Yorkshire, J. H. Gurney, 311-312; Shoveller at Skipwith, C. D. Ash, 312; Arrival of Autumnal Immigrants at Flamborough, M. Bailey, 312; Dotterell at Scarborough, W. J. Clarke, 327; Great Skua (?) at Scarborough, Id., 327; Ornithological Notes from East Yorkshire, B. B. Haworth-Booth, 327; Hawfinch at Ben Rhydding, H. Crowther, 332; Old Yorkshire Bird-Notes, E. A. W. Peacock, 332.

Cœlenterata: Bibliography, 1884-1892, W. Denison Roebuck, 151-158.

Coleoptera: *Monochamus sutor* in Yorkshire, H. Crowther, 22; Eight additions to the List of Water-beetles taken near Ayton, Scarborough, Rev. W. C. Hey, 28; *Bembidium nigricorne* at Shipley Glen, J. W. Carter, 28; Recent Captures of *Geodephaga* on the Moors of East Yorkshire, W. C. Hey, 52; *Monochamus sutor* in Yorkshire, E. G. Bayford, 52; Coleoptera in North-East Yorkshire, M. Lawson Thompson, 103-105; Beetles observed by Y. N. U. at Ferrybridge, J. Neale, 111; *Aphodius putridus* at Knaresborough, W. F. Baker, 146; Moor Beetles, W. C. Hey, 181-182; *Ocypus pedator* at York, W. C. Hey, 200; Beetles observed by Y. N. U. in Upper Newtondale, W. C. Hey, 207-208; *Elmidomorphus aubei* (*Bagous petroat*) Askham Bog, W. C. Hey, 242; Beetles noted at Allerston, Id., 270; *Cychrus rostratus* and *Pristonychus terricola* in South Yorkshire, E. G. Bayford, 272; A Swarm of *Ocypus olens* at Whitby, Leonard Hawkesworth, 301; A Swarm of *Ocypus olens*, E. G. Bayford, 346; *Hydroporus celatus*, an addition to the Yorkshire fauna, W. C. Hey, 346.

Diptera: Crane-flies hawked for by Sparrows at Leeds, H. Crowther, 80; Occurrence of *Bombylius major* at Masham, Percy H. Grimshaw, 171.

Ferns and Fern Allies: Ferns noted by Y. N. U. at Ferrybridge, A. H. Pawson,

110; and at Knaresborough, Id., 148; *Osmunda* at Thorne Waite, J. K. Miller, 171; Ferns observed by Y. N. U. in Upper Newtondale, A. H. Pawson, 209; Another Teesdale Locality for *Equisetum pratense*, W. West, jun., 270.

Fishes: Large Cod at Flamborough, M. Bailey, 106; Otters' method of feeding on Pike at Ayton, W. C. Hey, 106; Fishes observed by Y. N. U. at Ferrybridge, R. Fortune, 108-109; Notes on a few of the lesser known Fish observed in the Scarborough District during the last two years, Oxley Grabham, 177-179; Trout noted by Y. N. U. in Upper Newtondale, John Braim, 206.

Flowering Plants: Botanical Notes from the Sheffield District, T. Gibbs and E. Snelgrove, 7-13; absence of *Polemonium* from the Yorkshire portion of Teesdale, J. G. Baker, 17; and of *Alchemilla alpina* from nearly the whole of Yorkshire, P. Q. Keegan, 24; *Viola hirta* and *V. palustris* near Sheffield, erratum, T. Gibbs; Plants observed by Y. N. U. at Ferrybridge, A. H. Pawson, 109-110; and at Knaresborough, A. H. Pawson, 147-148; the Rarer Plants of the Walkeringham Neighbourhood in Notts, Lincolnshire, and Yorkshire, J. K. Miller, ed. E. A. Woodruffe-Peacock, 159-171; Plants observed by Y. N. U. in Upper Newtondale, A. H. Pawson, 208-209; a Lowland Sand-Loving Gentian, F. Arnold Lees, 225-228; *Milium effusum*, *Carex strigosa* and *C. pendula* at Hebden Bridge, W. Fowler, 238; *Carex cæspitosa* in Yorkshire, F. A. Lees, 241; *Malva sylvestris* at Flixton, W. Fowler, 242; More about *Arenaria gothica*, W. Whitwell, 257-260; Plants noted at Allerston, W. C. Hey, 269; *Typha latifolia* at Arncliffe, Wharfedale, W. A. Shuffrey, 270; *Carex cæspitosa* in Yorkshire, Arthur Bennett, 271-272; Further Discoveries of *Arenaria gothica*, Lister Rotheray, 303-307; *Gentiana pneumonanthe* and *Verbena officinalis* in North-East Yorkshire, R. H. Barker, 307; Re-Discovery of *Malaxis paludosa* in North-West Yorkshire, W. Ingham, J. G. Baker, 307; *Brassica muralis* in Upper Wharfedale, W. A. Shuffrey, 307; *Sparganium neglectum* in North-East Yorkshire, W. H. Beeby, 307; Some Additional West Riding Plant-localities, W. West, jun., 333-335; *Brassica muralis* near Mirfield, F. Crosland, 338.

YORKSHIRE—*continued.*

- Fungi**: Bibliography, 1888-1893, W. Denison Roebuck, 243-254; Fungi observed by Y. N. U. at Knaresborough, H. T. Soppitt, 148; *Mycena galericulata* at Hebden Bridge, W. Fowler, 238; *Puccinia malvacearum* at Flixton, Id., 242; Mushrooms at Allerston, W. C. Hey, 270.
- Geology**: Transactions of Hull Geological Society, 82; Geological observations by Y. N. U. at Ferrybridge, W. Lower Carter, 111; at Knaresborough, Thos. Tate, 148; and at the Hole of Horcum, E. Maule Cole, 211-212; the Story of the Lincoln Gap, F. M. Burton, 273-280; the Yorkshire Boulder Committee and its Ninth Year's Work, Thos. Tate, 339-345.
- Hymenoptera**: *Sirex gigas* at Knaresborough, W. Hewett, 147; *Formica rufa* in Newtondale, W. D. Roebuck, 203; Red Ants at Allerston, W. C. Hey, 270.
- Lepidoptera**: *Fidonia pinetaria* at Scarborough, *Peronea ferrugana* and *Dicro-rampa herbosana* at Huddersfield, G. T. Porritt, 80; Lepidoptera at Skipwith in 1894, Rev. C. D. Ash, 83-93; *Melanica phigalia pilosaria* at Huddersfield, Geo. T. Porritt, 132; Lepidoptera observed by Y. N. U. at Knaresborough, W. Hewett, 146; T. H. Blakey, 147; *Saturnia carpinii* near Langdale End, W. C. Hey, 181; Lepidoptera observed by Y. N. U. in Newtondale, W. D. Roebuck, 203; A. E. Hall, 207; *Acherontia atropos* at Huddersfield, G. T. Porritt, 336.
- Lichens**: Bibliography, 1888-1893, W. Denison Roebuck, 221-224; Lichens at Flamborough, W. Fowler, 242.
- Mammalia**: The Otter's method of feeding on Pike at Ayton, W. C. Hey, 106; Mammals observed by Y. N. U. at Ferrybridge, R. Fortune, 108-109; Occurrence of *Mus rattus* at Hull, F. W. Fierke, 131; Natural History Notes from the Bradford Churchwardens' Accounts, Herbert E. Wroot, 183-187; Mammals observed by Y. N. U. at Pickering and in Newtondale, John Braim, 205-206; Albino Shrew near Ackworth, O. Grabham, 242; Pouch made of Skin of Hedgehog in Yorkshire, S. Lister Petty, 310.
- Mollusca**: Bibliography of Marine Mollusca, 1889-1892, W. Denison Roebuck, 189-200; figure of *Anodonta anatina* var. *radiata* from Blue Bridge, York, 15; Mollusca observed by Y. N. U. at Ferrybridge, J. Hawkins, 109; Testa-
cella scutulum at Scarborough, F. W. Fierke, 179; *Dendronotus arborescens*, etc., at Flamborough, J. Darker Butterell, 187; *Tectura testudinalis* at Scarborough, E. Brierley, 200; Mollusca observed by Y. N. U. in Upper Newtondale, J. Hawkins and W. D. Roebuck, 206; *Tectura testudinalis* on the Yorkshire Coast, J. Darker Butterell, 346.
- Mosses and Hepatics**: Bibliography, 1888-1894, W. Denison Roebuck, 281-288; Mosses and Hepatics observed by Y. N. U. at Knaresborough, M. B. Slater, 148; Mosses and Hepatics observed by Y. N. U. in Upper Newtondale, M. B. Slater, 209-210; Mosses and Hepatics noted at Hebden Bridge, W. Fowler, 238.
- Museums**: Loss of the Milner example of the Great Auk by the Leeds Museum, 218.
- Orthoptera**: Bibliography, 1884-1892, W. Denison Roebuck, 49-51; *Tettix bipunctatus* collected by Y. N. U. in Upper Newtondale, G. T. Porritt, 208.
- Neuroptera and Trichoptera**: *Leptophlebia marginata* and *Limnephilus sparsus* observed by Y. N. U. in Upper Newtondale, G. T. Porritt, 208.
- Personal Notices**: Review of J. W. Taylor's Monograph of Land and Fresh-water Mollusca of British Isles, H. Crowther, 14-17 (with woodcuts); P. F. Kendall's paper on Glacial Geology of Isle of Man, 17; Harold Wager's paper on Centrospheres in Fungi, 17; Award of Lyell Fund to P. F. Kendall, and Medal to J. F. Blake, 68; Lord Walsingham appointed V. P. of Entomological Society, 68; Lectures by H. Crowther at Leeds, 68; Dr. Joseph Wright and his new English Dialect Dictionary, 82; H. E. Dresser's supplement to his Birds of Europe, 105; publication of 'Hepaticæ Elliotianæ' by late Richard Spruce, 111; Marriage of Leonard Hawkesworth, 112; In Memoriam notice of John Maw Kirk, 113-115; Paper by W. West and G. S. West on Fresh-water Algae from the West Indies, 132; Paper by Edgar R. Waite on New or Rare Fishes from Maroubra, N.S.W., 144; W. E. Collinge ceases to be Editor of the Journal of Malacology, 149; W. W. Reeves' herbarium acquired by Malton Naturalists' Society, 172; Decease of A. Goodman More, 172; Publication of Part 16 of Braithwaite's British Moss Flora, 180; Paper by George Masee on Finger and Toe, 188; Paper by T. T. Groom on

YORKSHIRE—*continued.*

the Mouth-parts of the Cypris-stage of *Balanus*, 188; Papers by Edgar R. Waite on Australian Snakes and Kangaroos, 188; Paper by G. Massee on a Revision of the Genus *Cordyceps*, 202; Paper by A. T. Watson on the Tube-forming Habits of *Panthalis oerstedii*, 202; S. Chadwick and his departure for New Zealand, 212; Appointment of Alfred Harker to a post on the Geological Survey of Scotland, 218; Palæo-Botanical Papers by Thos. Hick, 237; Papers by J. Newton Coombe on Reproduction in Diatoms, 260; Observations by Charles Crawshaw on the King-Crab (*Limulus*) in Captivity, 260; Notice of E. Snelgrove's Object Lessons in Botany, 280; P. H. Grimshaw's Paper on a New British Botfly Parasitic on the Red Deer, 308; Review of George Massee's British Fungus-Flora, Vol. 4, 309-310; Proposed Memoir of A. G. More, 338; Decease of Charles Sheard, 346; and of Rev. W. Thompson, 346.

Protozoa: Bibliography, 1884-1892, W. Denison Roebuck, 18-22.

Reptiles and Amphibians: Amphibians observed by Y. N. U. at Ferrybridge, R. Fortune, 109; Adders noted in Upper Newtondale, John Braim, 206.

Societies: Current Programmes of Craven Naturalists' Association, Halifax Scientific Society, Leeds Naturalists' Club, and Leeds Philosophical Society, 105; Y. N. U. at Ferrybridge, 107-111; at Knaresborough, 145-149; 61st Report of York School Natural History, etc., Society, 172; Malton Naturalists' Society and its monthly periodical, 172; report of Scarborough Field Naturalists' Society, 188; Yorkshire and Lincolnshire Naturalists' Unions at Broughton Wood and Twigmoor Gullery, E. A. Woodruffe-Peacock, 229-237; Toynbee Natural History Society in Camp in Upper Teesdale, 308.

Vermes: Bibliography, 1884-1892, W. Denison Roebuck, 69-80; *Melicerta ringens* and *Brachionus rubens* at Cusworth, near Doncaster, M. H. Stiles, 62.

MISCELLANEA.

Algæ: Notes on certain Algæ in Wales, at Kew, Maldon, Weymouth, and Appin, W. Barwell Turner, 150.

Arachnida: Bibliographical Notes on the Spiders of Scotland, Rev. F. O. Pickard-Cambridge, 29-30; incidental notices of Spiders taken in Hampshire, 30; Scotland, 37, 46; Dorsetshire 45, 46; in North Wales and at Loch Katrine, F. O. Pickard-Cambridge, 48; Cave-spider in Caves in Co. Cork, G. H. Carpenter, 62.

Birds: Crossbills in Scotland, John Cordeaux, 2; Heligoland Notes, Id., 5; Notes on Nesting Habits of Redstarts, Mary L. Armitt, 224; Occurrence of an Albatross on the Færøe Islands, notice of paper by Knud Anderson, 308.

Coleoptera: Observations on habits in captivity and on structure of the legs of *Monochamus sutor* in Yorkshire, 22; *Agabus tarsatus* in the Orkneys, W. W. Fowler, 104.

Collembola: Blind Campodeans in Caves in Co. Cork, G. H. Carpenter, 62.

Dialects: Dr. Wright's new English Dialect Dictionary, 82.

Flowering Plants: Notes on the Chemical Analysis of certain Lake District Rosaceæ, P. Q. Keegan, 23-27; range of *Sisyrinchium angustifolium* in Ireland, W. Hodgson, 27; publication of Linton, Moyle Rogers, and Murray's 4th fascicle of specimens of British Rubi, 115; *Sonchus arvensis* var. *angustifolia* in Norfolk, W. Whitwell, 132; A Lowland Sand-Loving Gentian, F. Arnold Lees, 225-228; *Carex cæspitosa* in the north of Scotland, Arthur Bennett, 271-272.

Lepidoptera: Merrifield's experiments in breeding varieties of *Selenia illustraria*, 144.

Mammalia: Some Staffordshire Mammalian records, L. E. Adams, 141-144.

Mollusca: Figures of *Helix granulata*, *Dreissena polymorpha* (muscular scars), *Hyalinia lucida* (Torquay), *Helix pulchella* (Kennington, Berks), and *H. lapicida* (Clifton, Bristol), 15-17.

Personal Notices: Death of Prof. C. C. Babington, 338.

Reptiles and Amphibians: Protective Colour-changes as observed in the Palmated Newt, C. Oldham, 219.

Societies: *Saccharomyces cerevisiæ* as the name for a students' society in America, 188.

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Contents:

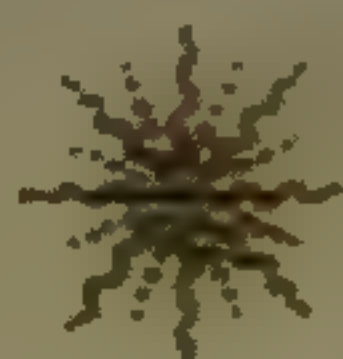
Bird-notes from the Humber District in the Autumn of 1894.— <i>John Cordeaux, M.B.O.U.</i>	1-6
Botanical Notes from the Sheffield District.— <i>T. Gibbs and E. Snelgrove, B.A.</i>	7-13
Review: A New Monograph of British Land and Freshwater Mollusca (illustrated).— <i>Henry Crowther, F.R.M.S.</i>	14-17
Bibliography: Protozoa, 1884 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i>	18-22
Notes on the Chemical Analysis of Certain Rosaceæ.— <i>P. Q. Keegan, LL.D.</i>	23-27
Additions to the List of Water-Beetles taken near Ayton, Scarborough.— <i>Rev. W. C. Hey, M.A., M.C.S.</i>	28
A List of the Araneidea of Cumberland and the Lake District.— <i>Rev. Fredk. O. Pickard-Cambridge.</i>	29-32
Note—Mammalia	6
Whiskered Bat in Lancashire— <i>Charles Oldham.</i>	6
Notes—Ornithology	
Nesting of the Woodcock near Bradford, 1894— <i>William Hewett</i> ; Nesting of the Hawfinch in Bolton Woods— <i>William Hewett</i> ; Nesting of the Turtle Dove near Skipwith in 1894— <i>William Hewett</i> ; Grey Phalarope on the Lancashire Coast— <i>Charles Oldham.</i>	22, 28
Notes—Coleoptera	
<i>Monochamus sutor</i> in Yorkshire— <i>Henry Crowther, F.R.M.S.</i> ; <i>Bembidium nigricorne</i> in Yorkshire— <i>J. W. Carter.</i>	27
Note—Botany	
Singular Discovery of <i>Sisyrinchium angustifolium</i> in Cumberland— <i>W. Hodgson, A.L.S.</i>	17, 27
Notes and News	

Communications to be addressed

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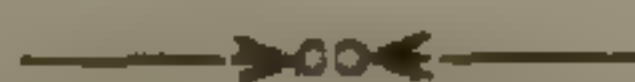
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Contents:

A List of the Araneidea of Cumberland and the Lake District.— <i>Rev. Fredk. O. Pickard-Cambridge</i> (concluded)	33-48
Bibliography: Orthoptera, 1884 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i> ..	49-51
The Constituents of the North Lancashire Flora— <i>Lister Petty</i>	53-60
Review: Newton's Dictionary of Birds— <i>John Cordeaux, M.B.O.U.</i>	61
Bird-Notes from the Mid-Trent Valley for 1894— <i>F. B. Whitlock</i>	63-64
Notes—Botany	51
Sheffield Botany: Erratum— <i>Thos. Gibbs</i> ; <i>Stellaria aquatica</i> and <i>S. nemorum</i> in Cumberland— <i>Wm. Hodgson, A.L.S.</i>	
Notes—Coleoptera	52
Recent Captures of Geodephaga on the Moors of East Yorkshire— <i>Rev. W. C. Hey, M.A., M.C.S.</i> ; <i>Monochammus sartor</i> in Yorkshire— <i>E. G. Bayford</i> ; <i>Monochammus sutor</i> and other Timber-imported Beetles at Hartlepool— <i>J. Gardner, F.E.S.</i>	
Note—Hymenoptera	52
<i>Sirex juvencus</i> at Hartlepool— <i>J. Gardner, F.E.S.</i>	
Note—Ornithology	62
Grouse and the Storm— <i>R. Fortune, F.Z.S.</i>	
Note—Algæ	62
Provisional List of Diatoms found at Cusworth, near Doncaster— <i>M. H. Stiles.</i>	
Notes and News	62

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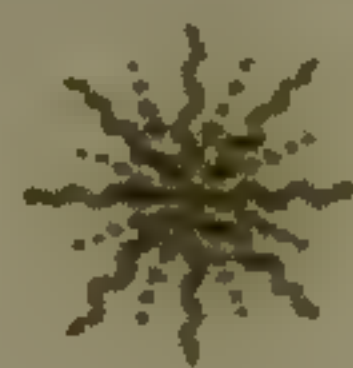
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Contents:

Bird-Notes from the Mid-Trent Valley for 1894— <i>F. B. Whitlock</i> (concluded) ..	65-68
Bibliography: Vermes, 1884 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i> ..	69-80
Review: Cooke's Edible and Poisonous Fungi— <i>C. Crossland</i>	81
Lepidoptera at Skipwith in 1894— <i>Rev. Cyril D. Ash, B.A.</i>	83-93
A Critical Catalogue of Lincolnshire Plants: from all known sources, Sixth Paper— <i>Rev. E. Adrian Woodruffe-Peacock</i>	95-98
Note—Mammalia	82
Whale at Maughold, Isle of Man— <i>Rev. Wm. Spiers, M.A., F.G.S., F.R.M.S.</i>	
Note—Botany	82
Bekansgill: A Place-Name of Botanical Derivation— <i>Lister Petty.</i>	
Notes—Lepidoptera	80
<i>Fidonia pinetaria</i> at Scarborough— <i>G. T. Porritt, F.L.S., F.E.S.</i> ; <i>Perronea ferruginea</i> and <i>Dicrorampha herbosana</i> at Huddersfield— <i>Geo. T. Porritt, F.L.S., F.E.S.</i>	
Notes—Ornithology	80-94
Sparrows Hawking for Crane-flies— <i>Henry Crowther, F.R.M.S.</i> ; Little Auks at Redcar— <i>T. H. Nelson, M.B.O.U.</i> ; Little Auks on the Northern Coast— <i>H. T.</i> <i>Archer</i> ; Breeding of the Woodcock near Bradford in 1894— <i>H. B. Booth</i> ; Little Auks near Bradford— <i>H. B. Booth</i> ; The Little Auk in Leeds— <i>Percy F. Kendall,</i> <i>F.G.S.</i>	
Notes and News	88, 82

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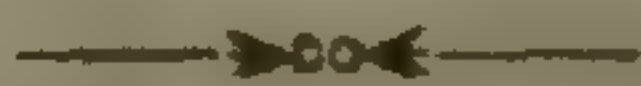
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Contents:

A Critical Catalogue of Lincolnshire Plants: from all known sources, Sixth Paper— <i>Rev. E. Adrian Woodruffe-Peacock</i>	97-102
Coleoptera in North-East Yorkshire. — <i>M. Lawson Thompson</i>	103-105
Yorkshire Naturalists' Union at Ferrybridge	107-111
Review: The Natural History of Flamborough	112
In Memoriam: John Maw Kirk, F.R.M.S.— <i>M. H. Stiles</i>	113-115
Review: Farm Vermin	116
Bird-Notes from the Humber District in the Winter of 1894-5. — <i>John Cordeaux, M.B.O.U.</i>	117-122
Bibliography: Freshwater Algæ, 1888 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i>	123-128
Note.—Fishes	106
Large Cod at Flamborough— <i>Matthew Bailey.</i>	106
Note.—Botany	106
Bekansgill— <i>John Hawell, M.A.</i>	106
Note.—Mammalia	106
The Otter's Method of Feeding— <i>Rev. W. C. Hey, M.A.</i>	106
Note.—Ornithology	106
Flamborough Bird-Notes— <i>Matthew Bailey.</i>	106
Notes and News	105, 111, 112, 115, 116

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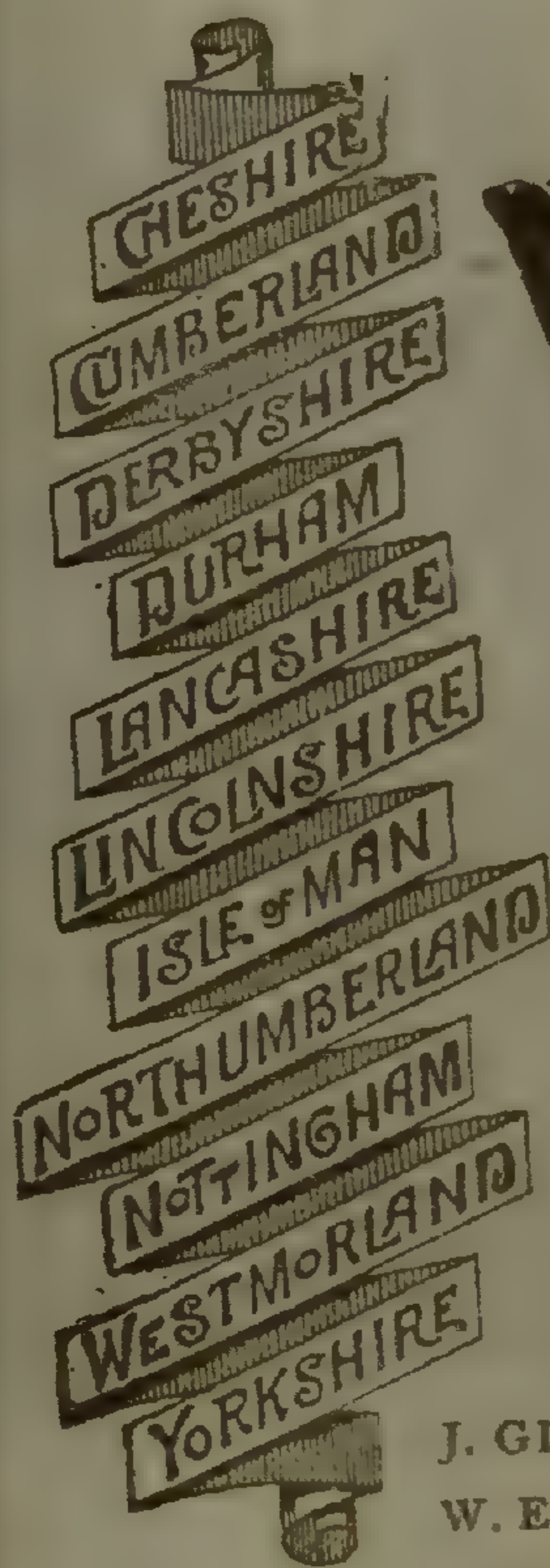
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Contents:

Bibliography: Freshwater Algæ, 1888 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i>	129-131
The Constituents of the North Lancashire Flora, 1597(?)—1893.— <i>Lister Petty.</i>	133-140
The Mammals of the Ashbourne District of Derbyshire.— <i>Lionel E. Adams, B.A.</i>	141-144
Yorkshire Naturalists at Knaresborough.— <i>W. F. Baker, F.E.S.</i>	145-149
Bibliography: Cœlenterata, 1884 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i>	151-158
The Rarer Plants of the Walkeringham Neighbourhood in Nottinghamshire, Lincolnshire, and Yorkshire.— <i>The late Rev. J. K. Miller. Edited, with Notes, by the Rev. E. Adrian Woodruffe-Peacock.</i>	159-160
Note—Mammalia	131
Occurrence of <i>Mus rattus</i> at Hull.— <i>F. W. Fierke.</i>	132
Note—Lepidoptera	150
Melanic <i>Phigalia pilosaria</i> at Huddersfield.— <i>Geo. T. Porritt, F.L.S., F.E.S.</i>	150
Note—Botany	150
Bekansgill.— <i>L. Petty.</i>	150
Note—Ornithology	150
Eggs of the Lesser Tern.— <i>E. G. Potter.</i>	150
Note—Algæ	132, 144, 149
Further Notes on certain Algæ.— <i>W. Barwell Turner, F.R.M.S.</i>	
Notes and News	

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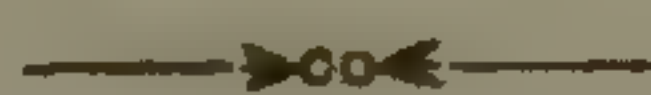


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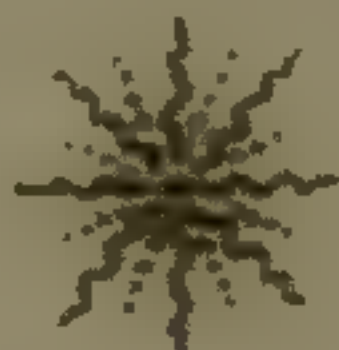
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Contents:

The Rarer Plants of the Walkeringham Neighbourhood in Nottinghamshire, Lincolnshire, and Yorkshire.— <i>The late Rev. J. K. Miller. Edited, with Notes, by the Rev. E. Adrian Woodruffe-Peacock.</i>	161-171
Bibliography: Marine Algæ, 1888 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i> ..	173-176
Notes on a few of the Lesser Known Fish observed in the Scarborough District during the last two years.— <i>Oxley Grabham, M.A., M.B.O.U.</i> ..	177-179
Moor Beetles.— <i>Rev. W. C. Hey, M.A., M.C.S.</i>	181-182
Natural History Notes from the Bradford Churchwardens' Accounts — <i>Herbert E. Wroot</i>	183-187
Bibliography: Marine Mollusca, 1889 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i> ..	189-192
Note—Diptera	171
Occurrence of <i>Bombylius major</i> L. at Masham— <i>Percy H. Grimshaw, F.E.S.</i> ..	171, 179, 187
Notes—Ornithology	179, 187
Arrival of Spring and Summer Migrants at Flamborough— <i>Matthew Bailey</i> ; Occurrence of the Water-Pipit in North Lincolnshire: An Addition to the Avi-fauna of the Humber District— <i>John Cordeaux, M.B.O.U.</i> ; Yellow Wagtail and Green Woodpecker at Kirton-in-Lindsey— <i>C. F. George, M.R.C.S.</i>	172, 180, 187, 188
Notes—Mollusca	172, 180, 187, 188
Testacella scutulum at Scarborough— <i>F. W. Fierke, M.C.S.</i> ; <i>Dendronotus arborescens</i> at Flamborough— <i>J. Daker Butterell, M.C.S.</i>	
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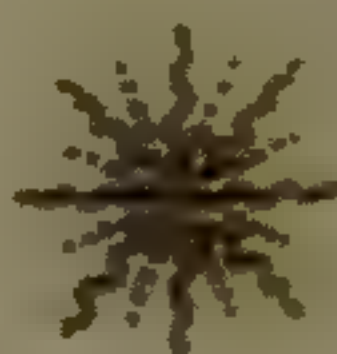
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Contents:

Bibliography: Marine Mollusca, 1889 to 1892.— <i>Wm. Denison Roebuck, F.L.S.</i> ...	193-200
Review—London Catalogue of British Plants: Ninth Edition	201-202
The Yorkshire Naturalists' Union at the Hole of Horcum.— <i>W. Denison Roebuck, F.L.S.</i>	203-212
Further Additions to the List of some Hemiptera-Heteroptera of Lincolnshire.— <i>Extracted from the Register kept by James Eardley Mason.</i>	213-218
Palmated Newt in Cheshire.— <i>Charles Oldham, M.C.S.</i>	219
Occurrence of Two Early and Rare Diptera at Grange.— <i>R. H. Meade.</i>	220
Bibliography: Lichens, 1888 to 1893.— <i>Wm. Denison Roebuck, F.L.S.</i>	221-224
Note—Mollusca	200
Tectura tectudinalis at Scarborough.— <i>Mrs. E. Brierley.</i>	200
Note—Coleoptera	200
Ocypus pedator Grav., at York.— <i>Rev. W. C. Hey, M.A.</i>	200
Note—Botany	212
Vicia orobus and Lemna trisulca in Westmorland.— <i>Joseph A. Martindale.</i>	212
Note—Fungi	218
Panus rudis in Britain.— <i>J. Larder.</i>	218
Note—Hemiptera	224
Hemiptera-Homoptera of Alford District.— <i>Extracted from the Register kept by James Eardley Mason.</i>	224
Notes—Ornithology	202, 218
Raven and Peregrine Nesting in Westmorland.— <i>R. E. Leach, M.A., F.L.S.</i> ; Occurrence of the Greenshank and Nesting of Woodcock in the Washburn Valley— <i>R. Fortune, F.Z.S.</i> ; Redstarts in Lakeland— <i>Miss Mary L. Armitt.</i>	202, 218
Notes and News	202, 218

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Contents:

A Lowland Sand-loving Gentian.— <i>F. Arnold Lees, M.R.C.S.</i>	225-228
The Yorkshire and Lincolnshire Naturalists' Unions at Broughton Wood and Twiggmoor Gullery— <i>Rev. E. A. Woodruffe-Peacock</i>	229-237
Review: Further Remarks Anent the New London Catalogue of Plants— <i>F. Arnold Lees, M.R.C.S.</i>	239-241
Bibliography: Fungi, 1888 to 1893.— <i>Wm. Denison Roebuck, F.L.S.</i>	243-254
Review: Biology at Liverpool— <i>E. Howarth, F.R.A.S.</i>	254-258
Notes—Ornithology	238
Red-legged Partridge near Huddersfield, <i>Johnson Wilkinson, M.B.O.U.</i> ; Great Skua at Scarborough— <i>Johnson Wilkinson, M.B.O.U.</i> ; Range of the Nightjar and Buzzard in the Lake District— <i>Rev. Hilderic Friend, F.L.S.</i>	238
Notes—Botany	242
<i>Turritis glabra</i> , etc., in the Lake District— <i>Rev. Hilderic Friend, F.L.S.</i> ; Botanical Notes from Hebden Bridge— <i>Rev. William Fowler, M.A.</i>	242
Note—Fungi	242
<i>Puccinia malvacearum</i> Corda at Flixton— <i>Rev. Wm. Fowler, M.A.</i>	242
Note—Lichens	242
Lichens at Flamborough— <i>Rev. William Fowler, M.A.</i>	242
Note—Coleoptera	242
<i>Elmidomorphus aubei</i> (Bagous petro) at Askham Bog— <i>Rev. W. C. Hey, M.A., M.C.S.</i>	242
Notes—Mammalia	237, 242
Hedgehog at Lorton— <i>Rev. Hilderic Friend, F.L.S.</i> ; Albino Shrew in Yorkshire— <i>Oxley Grabham, M.A., M.B.O.U.</i>	
Notes and News	

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Contents:

More about <i>Arenaria gothica</i> .— <i>William Whitwell, F.L.S.</i>	257-260
The Constituents of the North Lancashire Flora, 1597(?)—1893.— <i>Lister Petty.</i>	261-268
Allerston.— <i>Rev. W. C. Hey, M.A., M.C.S.</i>	269-270
<i>Carex caespitosa</i> L. Fr. in Yorkshire.— <i>Arthur Bennett, F.L.S.</i>	271-272
Lincolnshire Naturalists at Sleaford.— <i>Rev. E. Adrian Woodruffe-Peacock</i> ..	313-315
Review: British Lepidoptera	316
Lincolnshire Agriculture One Hundred Years ago.— <i>John Cordeaux, M.B.O.U.</i>	317-326
Notes—Botany	270, 326
Another Teesdale Locality for <i>Equisetum pratense</i> Ehrh.— <i>W. West, Jun.</i> ; <i>Typha latifolia</i> at Arncliffe, Wharfedale.— <i>Rev. W. A. Shuffrey, M.A.</i> ; New Records for North Lancashire, 1894.— <i>S. L. Petty.</i>	
Note—Coleoptera	272
<i>Cychrus rostratus</i> and <i>Pristonychus terricola</i> in South Yorkshire.— <i>E. G. Bayford.</i>	
Notes—Ornithology	327
Food of Little Auk.— <i>H. T. Archer</i> ; Dotterell at Scarborough.— <i>Wm. J. Clarke</i> ; Great Skua (?) at Scarborough.— <i>Wm. J. Clarke</i> ; Ornithological Notes from East Yorkshire.— <i>Lt.-Col. B. B. Haworth-Booth, J.P.</i>	
Notes—Mammalia	328
Whiskered Bat in Derbyshire.— <i>Chas. Oldham</i> ; Porpoise in the Mersey.— <i>Chas. Oldham</i> ; Hedgehogs in the Lake District and Nottinghamshire.— <i>Prof. J. W. Carr, M.A., F.G.S.</i>	
Note—Fungi	329
New Lincolnshire Fungi.— <i>Rev. W. Fowler, M.A.</i>	
Notes and News	260, 316, 328

Communications to be addressed
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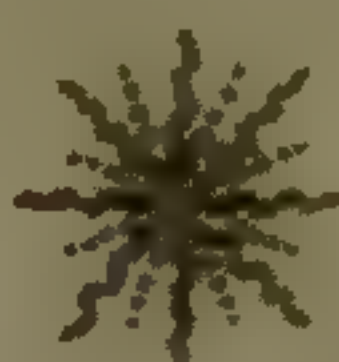
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Contents:

The Natural History Divisions of Lincolnshire (concluded)— <i>Rev. E. Adrian Woodruffe-Peacock</i>	297-301
Further Discoveries of <i>Arenaria gothica</i> — <i>Lister Rotheray</i>	303-307
Review: Masee's Fungus Flora	309-310
Supposed Occurrences of the Spotted Sandpiper in Yorkshire— <i>John Henry Gurney, F.Z.S., M.B.O.U.</i>	311-312
The Story of the Lincoln Gap— <i>F. M. Burton, F.L.S., F.G.S.</i>	273-280
Bibliography: Mosses and Hepatics, 1888 to 1894— <i>Wm. Denison Roebuck, F.L.S.</i>	281-288
Note—Coleoptera	301
A Swarm of <i>Ocyrops olens</i> — <i>Leonard Hawkesworth</i>	302, 308, 312
Notes—Ornithology	
East Yorkshire Bird-Notes— <i>Lt. Col. B. B. Haworth-Booth</i> ; Large Birds of Prey in Lincolnshire— <i>F. B. Whitlock</i> ; <i>Muscicapa atricapilla</i> in Lakeland— <i>Mary L. Armitt</i> ; Great Skua at Scarborough— <i>Johnson Wilkinson, M.B.O.U.</i> ; Shoveller at Skipwith— <i>Rev. C. D. Ash, B.A.</i> ; Flamborough Bird-Notes— <i>Matthew Bailey</i>	307
Notes—Botany	
<i>Andromeda polifolia</i> at Newton Moss near Penrith— <i>J. Charles Smith</i> ; <i>Gentiana pneumonanthe</i> and <i>Verbena officinalis</i> in North-East Yorkshire— <i>Reginald H. Barker</i> ; Re-Discovery of <i>Malaxis paludosa</i> in North-West Yorkshire— <i>Wm. Ingham, B.A.</i> ; <i>Brassica muralis</i> in Upper Wharfedale— <i>Rev. W. A. Shuffrey, M.A.</i> ; <i>Sparganium neglectum</i> in North-East Yorkshire— <i>W. H. Beeby</i>	310
Note—Lichens	
<i>Umbilicaria pustulata</i> near Keswick— <i>Joseph A. Martindale</i>	310
Notes—Mammalia	
Daubenton's Bat in Cheshire— <i>Chas. Oldham</i> ; Hedgehogs in the Lake District— <i>S. Lister Petty</i>	280, 308
Notes and News	

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Contents:

The Otter in the Mid-Trent Valley and its Tributaries.— <i>F. B. Whitlock.</i>	329-332
Some Additional West Riding Plant-Localities.— <i>W. West, Jun.</i>	333-335
Review: Bird-Life and Structure.— <i>Henry Crowther, F.R.M.S.</i>	337-338
The Yorkshire Boulder Committee and its Ninth Year's Work.— <i>Thomas Tate, F.G.S.</i>	339-345
Notes—Ornithology	332
The Night-jar in Cumberland— <i>W. Hodgson, A.L.S.</i> ; Hawfinch at Ben Rhydding— <i>Henry Crowther, F.R.M.S.</i> ; Old Yorkshire Bird Notes— <i>Rev. E. Adrian Woodruffe-Peacock.</i>	336
Notes—Lepidoptera	336
Acherontia atropos at Huddersfield— <i>Geo. T. Porritt, F.L.S., F.E.S.</i> ; Cosmia paleacea in South Lancashire— <i>Chas. Oldham.</i>	338
Notes—Mammalia	339
Hedgehog at Lorton— <i>W. Hodgson, A.L.S.</i>	338
Note—Botany	346
Brassica muralis— <i>F. Crosland.</i>	346
Note—Diptera	346
Occurrence of a Rare Dipteron at Silverdale— <i>R. H. Meade.</i>	346
Note—Mollusca	346
Tectura testudinalis on the Yorkshire Coast— <i>J. Darker Butterell.</i>	346
Notes—Coleoptera	338, 346
A Swarm of Ocypus olens— <i>E. G. Bayford</i> ; Hydroporus celatus: An Addition to the Yorkshire Fauna— <i>Rev. W. C. Hey, M.A.</i>	
Notes and News	

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